

*March* 1943

# TECHNOLOGY REVIEW

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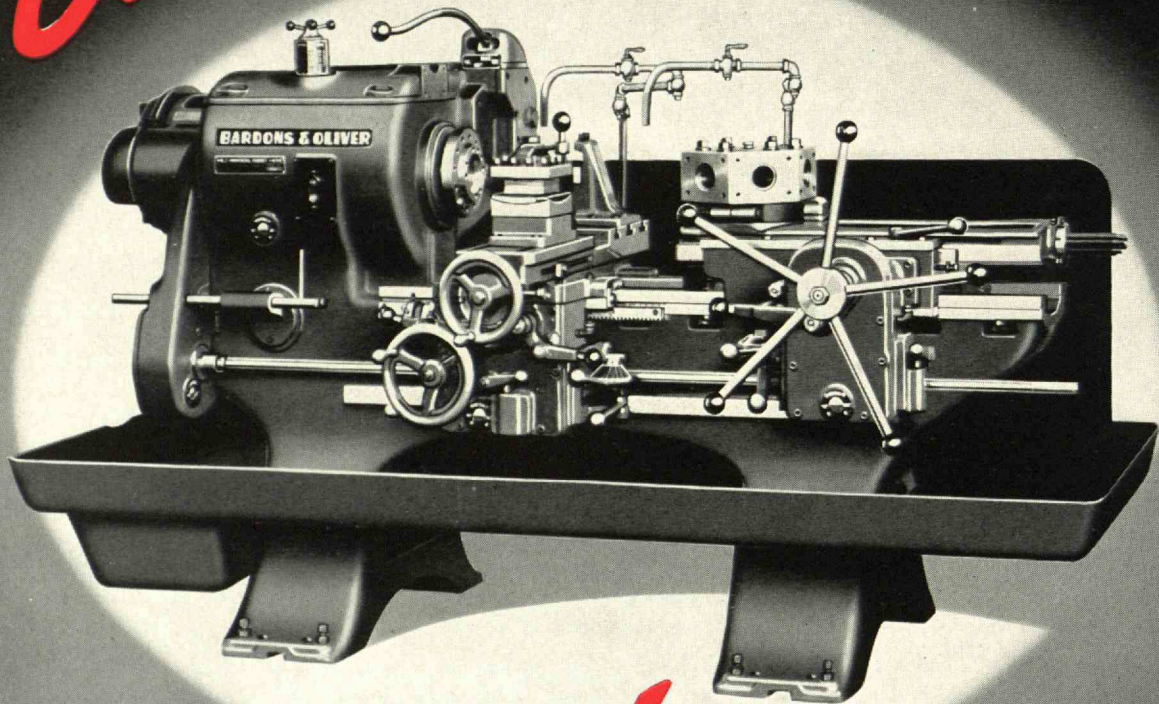
# technology review

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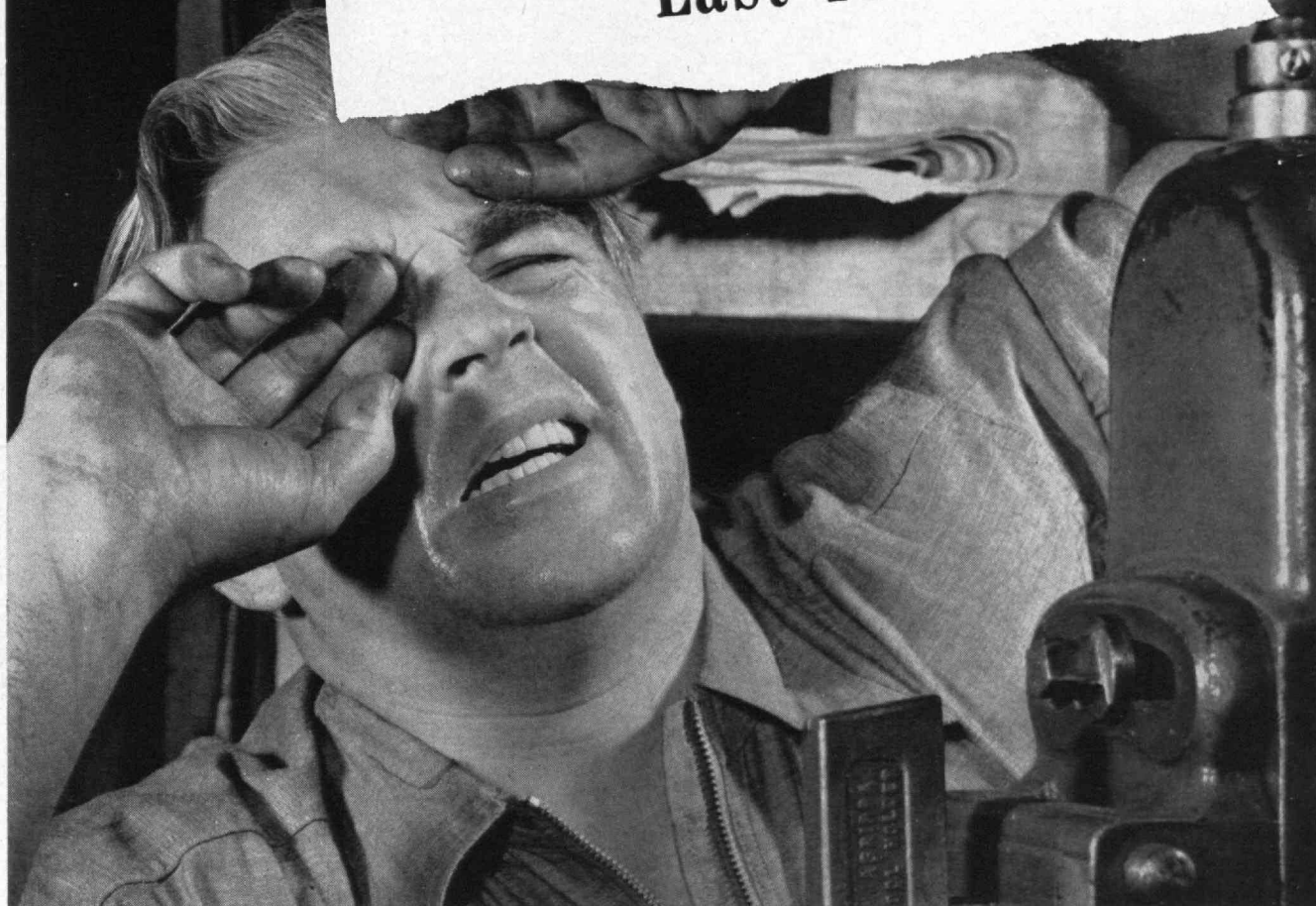
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# THIS IS NO MILITARY SECRET

Eye Accidents Cost Industry  
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American Optical Company offers the means of minimizing eye injuries—a complete line of protective, comfortable goggles, for every type of industrial

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Get in touch with your nearest American Optical Company Branch Office as soon as possible.

## American Optical

COMPANY

SOUTHBRIDGE, MASSACHUSETTS

THE TECHNOLOGY REVIEW, March, 1943. Vol. XLV, No. 5. Published monthly from November to July inclusive at 10 Ferry Street, Concord, N. H. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription \$3.50; Canadian and foreign subscription \$4.00. Entered as second-class matter at the Post Office at Concord, N. H., under the Act of March 3, 1879.

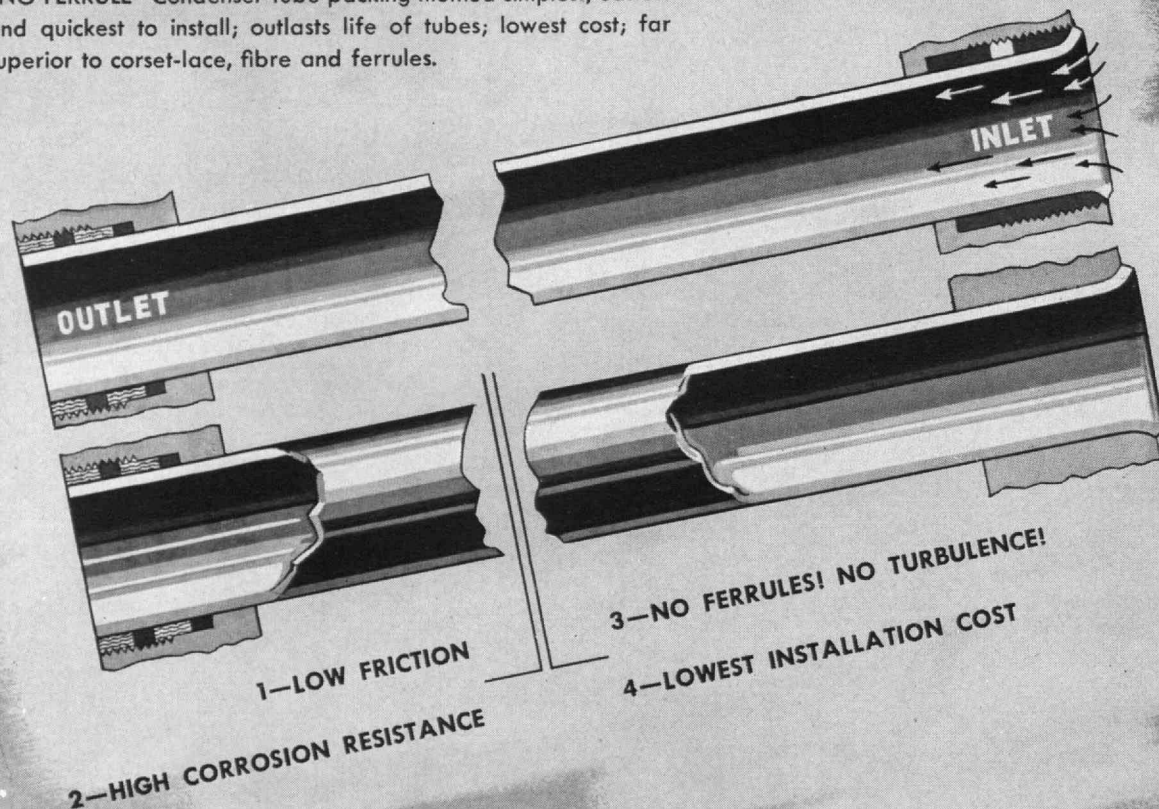




# *Make* **CONDENSER** *tubes* *last* **MANY YEARS** *longer ...*

## **10,000 INSTALLATIONS**

Naval, Marine and Industrial service proves John Crane Metallic "NO FERRULE" Condenser-tube packing method simplest, easiest and quickest to install; outlasts life of tubes; lowest cost; far superior to corset-lace, fibre and ferrules.



## **JOHN CRANE** *Metallic* **CONDENSER PACKING**

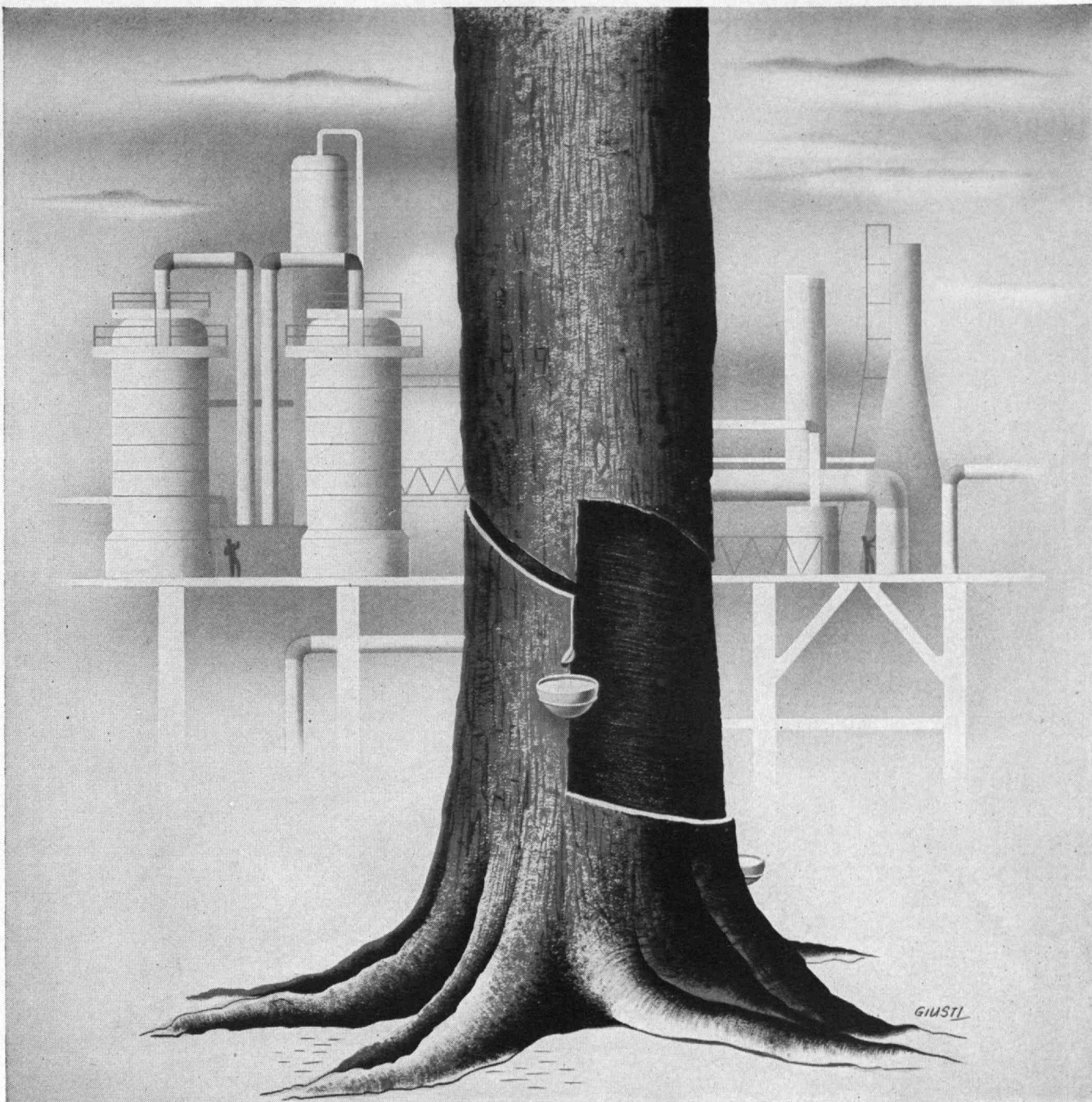
### **"NO-FERRULE" METHOD FOR NEW AND OLD CONDENSERS**

The New John Crane "No Ferrule" method bonds the tube to the tube-sheet in this way:

Illustration top left shows outlet-end of old condenser packed with Metallic and Fibre Expansion Rings. Perfect Bond. Free to expand . . . Inlet-end shows Fibre Expansion Bushing with Lead-slug-insert, bonding tube to tube sheet . . . On new condensers, bottom illustration, inlet-end is packed same as on old units. Outlet-end is beiled (no packing). Ask for comparative studies showing advantages of metallic packings over fibre and corset-lace ferrules.

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Branches: Baltimore, Buffalo, Boston, Cleveland, Dallas, Detroit, Houston, Los Angeles, New Orleans, New York, Philadelphia, Pittsburgh, San Francisco, St. Louis, Tulsa  
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**2-OCEAN CONDENSER SERVICE**  
The only world-wide service of its kind . . .  
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Canada, England.



## RUBBER TREES are growing in America

This is a lightning war—a struggle of speeding machines and men. You can't fight and work—*fast*—without rubber. Victory rolls on it!

With most of the world's natural rubber in the hands of the treacherous Jap, America's petro-chemical industries must achieve—almost overnight—huge synthetic rubber production.

Badger is helping to do this big, complicated job. It is co-operating directly with the chemical and petroleum indus-

tries in the design and construction of a large percentage of the new plants for the production of Butadiene—a primary material in the manufacture of Buna-S, one of the principal synthetic rubbers.

Behind Badger's ability and whole-hearted effort to help America solve the critical rubber problem are years of experience in chemical processing, distillation, fractionation and refining.

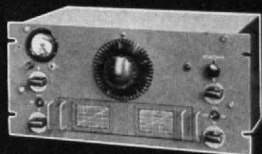
This experience also enables Badger to do other important war jobs—building

plants and equipment for the production of smokeless powder, T.N.T., alcohol, aviation gasoline and many other strategic materials.

**E. B. Badger**  
**AND SONS COMPANY**  
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# PROVEN UNDER FIRE



National Radio Equipment, designed for peacetime use, is proving out in the hardest tests of war. Receivers and parts that look familiar to any Ham are coming off our lines in steadily increasing quantities to serve in combat communications. National takes especial pride that war brought no sudden redesign of our products.

Just as in peacetime, our equipment was tailored to serve the amateur, so now the same basic designs have been modified to meet the specialized needs of United Nations fighting men. As in peacetime, National designs are being steadily improved, but under the pressure of war, years of research and development are being telescoped into months.

There are many technical developments that we wish we could tell you about now. When the war is won, you will be able to see them in the finest equipment National has ever built.

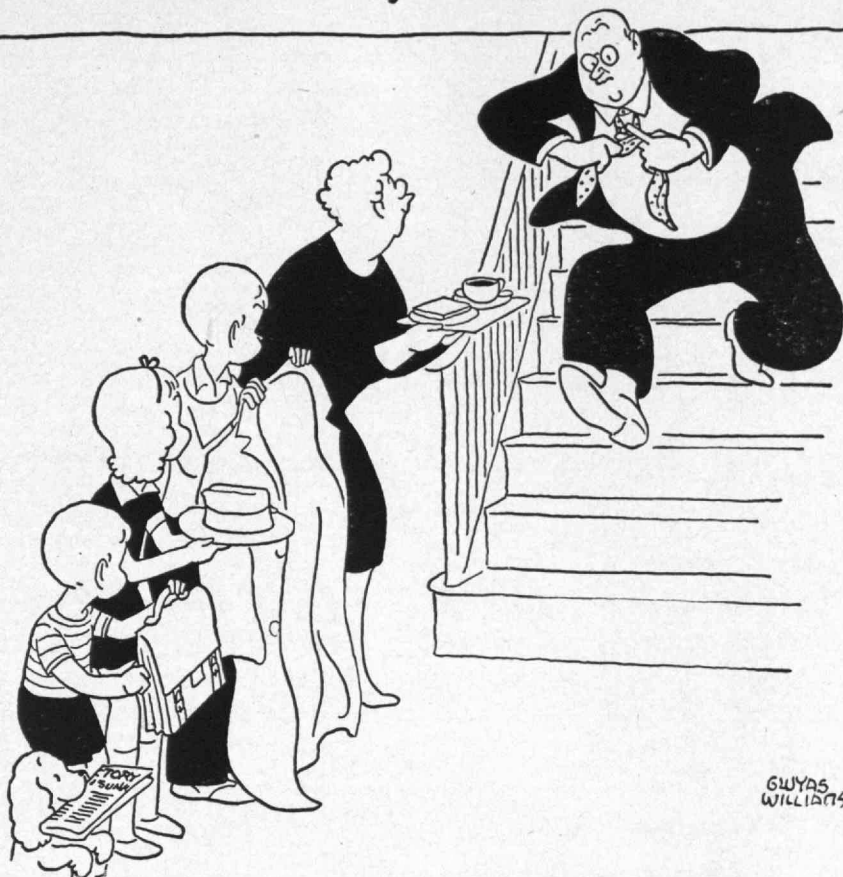


**NATIONAL COMPANY, INC., MALDEN, MASS.**



OFFICIAL U. S. NAVY PHOTOGRAPH

## Wartime readjustments . . . #6



GIL TURNER HAS TO LEAVE HOME TEN MINUTES EARLIER WHEN IT'S HIS DAY TO DRIVE THE CAR POOL

**T**he men in Gil's car pool eat on the run, once a week. But they're better neighbors now, *for having to depend upon each other.*

Many wartime readjustments have their saving side. They make lost luxuries seem less important—and basic values look *larger.*

This war-born insight, applied to the family budget, puts taxes and War Bonds first, then life insurance. All three help the war effort (much of your life insurance premium goes into Government bonds). Insurance also provides a lot of family protection for the modest price you pay.

Life insurance in this company, like the car pool, is a *mutual* proposition. But here you share your risks with a nation-wide group, instead of a neighborhood. And your insurance has a

*guaranteed* value that grows steadily, year by year.

Uncertainty need not keep you from buying now, for the liberal New England Mutual contract even helps carry itself if the going gets tough!

### New England Mutual contracts meet present-day needs because:

- 1 **DIVIDENDS** begin at the end of the *first* year.
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- 3 **A PREMIUM LOAN** is available beginning with the *second* annual premium.

*Let a Career Underwriter show you how valuable these features can be*

## New England Mutual Life Insurance Company of Boston

George Willard Smith, President Agencies in Principal Cities Coast to Coast  
The First Mutual Life Insurance Company Chartered in America—1835

## Pool Insurance Problems, too!

Like the car pool, life insurance is a *mutual* matter. And so is life insurance counsel.

Sound counsel calls for mutual trust and confidence. A good way to get good advice on your wartime financial readjustments is to talk them over fully and frankly with competent underwriters.

A number of them are listed below. They're alumni of your college and they talk your language. They are also trained representatives of the First Mutual Life Insurance Company Chartered in America.

Out of their experience you'll get *practical*, constructive suggestions. They'll help you make the most of your limited life insurance dollars—help you protect your present policies with premium loans if necessary. Check your protection *now when you need it most.*

RAYMOND P. MILLER, '18

Salem

ARTHUR C. KENISON, '19

Boston

BLAYLOCK ATHERTON, '24

Nashua

If none of these folks is near you, you can get similar service at the New England Mutual office in your city. Or use the coupon below, and the Home Office will be glad to have a competent representative get in touch with you. No obligation, of course.

**NEW ENGLAND MUTUAL LIFE  
INSURANCE COMPANY OF BOSTON**  
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Boston, Mass.

Please have one of your representatives get in touch with me, without obligation on my part.

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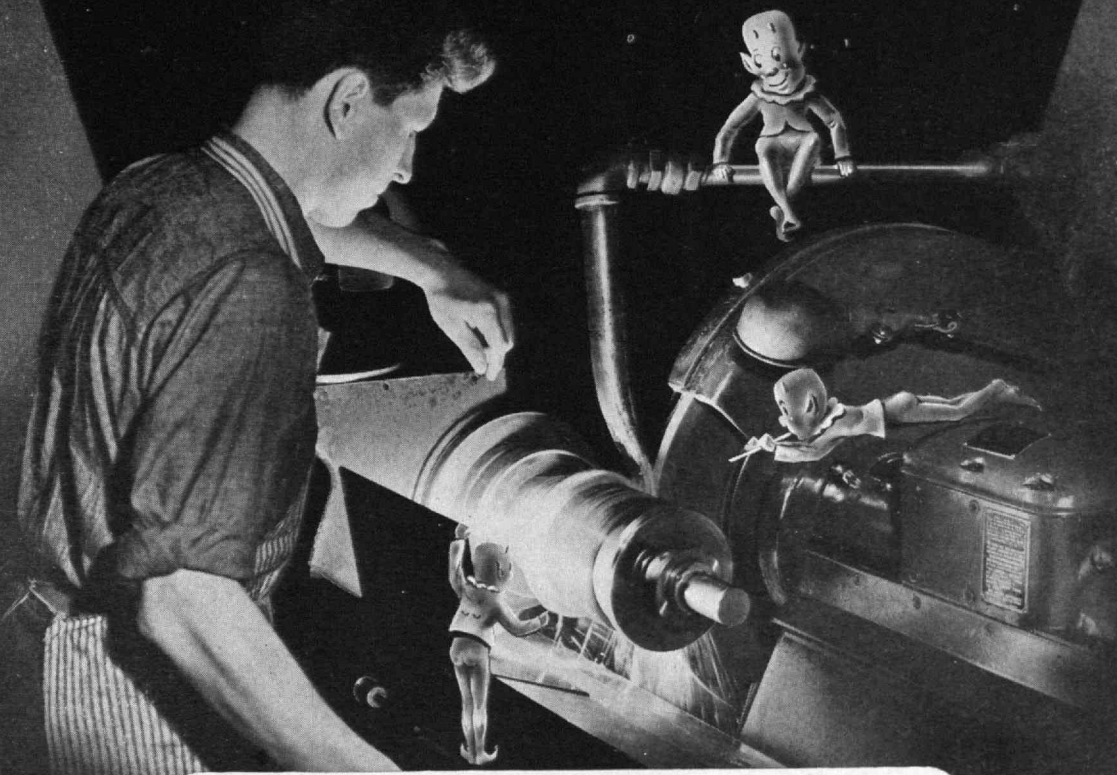
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(214)

# *There are GRINDLINS too, as well as Gremlins*



As the fiendish little Gremlins dance on the wings of the airplane, and ride the radio beams,

just so, devilish little Grindlins tease and hamper the precision grinding machine operator.

"Your wheel is too soft, buddy," gleefully chirps the Grindlin. "Too soft, nix," says the voice of experience. "I true it more frequently because it has worn down to a smaller diameter."

"Ah, I've made your wheel glaze," he taunts. "True enough, you young imp" is the retort, "but I'll just increase the work speed, then watch it cut."

Think this over: Why be heckled by Grindlins while production lags. Norton engineering experience has met up with all their tricks that slow production and impair finish.

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Vice President

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271 NINTH ST., BKLYN., N. Y.

## THE TABULAR VIEW

**Plenipotentiary.** — The commencement address to Technology's Class of 1943, published in this issue of *The Review* (page 233), was a discussion of the place of trained men in warfare; the speaker knew well whereof he spoke. CLARENCE D. HOWE, '07, who began his professional career on the staff of the Institute, went on to the faculty of Dalhousie University, and later developed the engineering and construction firm which bears his name, was elected to the Canadian Parliament in 1935 and was immediately appointed to the cabinet as minister of railways and canals and also minister of marine. When war demanded, he became minister of munitions and supply. Presenting him at commencement exercises, President Compton characterized this post as "the most important position in Canada under the Prime Minister. In the United States we would recognize its significance if we imagined Donald Nelson, William Jeffers, General Somervell, Harold Ickes, and James Byrnes all combined into one individual."

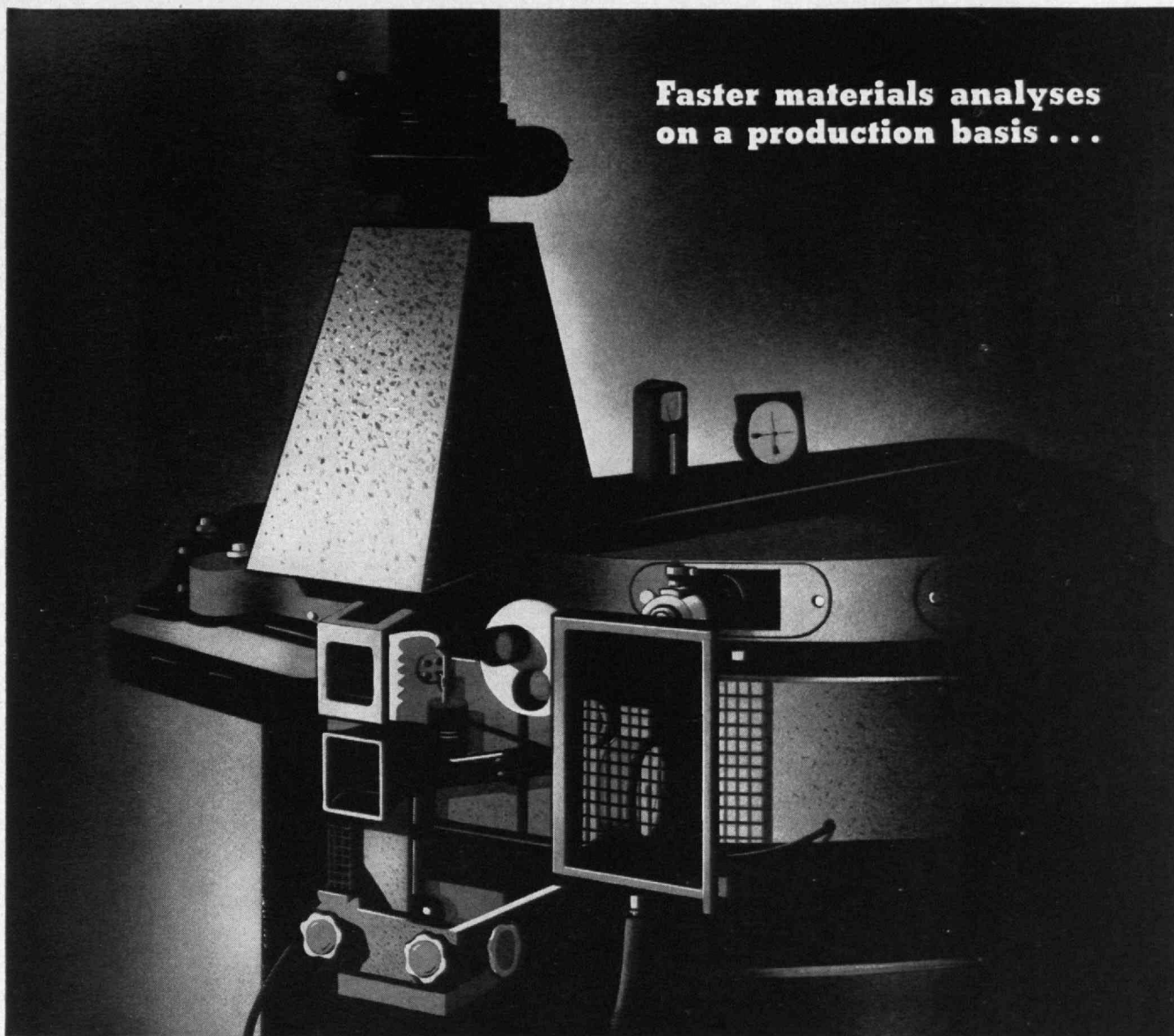
**Godspeed.** — PRESIDENT KARL T. COMPTON's valedictory to graduating seniors each year is an epitome of the attitude toward life and toward education which the Institute expresses. His address this year to the wartime Class of 1943 (page 235) is a powerful assertion of the faith and ideals actuating the advancement of knowledge as Technology seeks to contribute toward it. In the *Institute Gazette* section of this issue (page 244) are published excerpts from Dr. Compton's annual talk to Alumni, discerning and defining problems all educational institutions must now foresee.

**Impact.** — Effects of war on the Institute and how the potentialities of the Institute are reckoned on as part of the national effort were discussed in the baccalaureate address this year by PAUL V. McNUTT, chairman of the War Manpower Commission. Mr. McNutt's address (page 237) surveys the necessities imposed upon technological and scientific schools by war and the ways in which the schools can best meet them.

**Futures.** — Consideration of possible effects of the continuation of wartime controls into peacetime and appraisal of the virtues and shortcomings of free enterprise as it has operated in the nation's history were the core of the Alumni Banquet address of B. EDWIN HUTCHINSON, '09, Vice-president of the Chrysler Corporation and former President of the Alumni Association. Mr. Hutchinson's forceful paper appears on page 239.

**Costs.** — What accidents meant to the nation in terms of energy wasted during 1942 is surveyed in this issue (page 230) by EDWARD R. SCHWARZ, '23, Professor of Textile Technology at the Institute and Editorial Associate of *The Review*. President of the Massachusetts Safety Council, Professor Schwarz has long been active in industrial protection.

**Faster materials analyses  
on a production basis . . .**



*Information supplied by Fairchild Engine and Airplane Corporation*

Spectograph equipment is now being used by Fairchild for the analysis of materials. Such analyses are necessary to insure that the materials meet the exacting specifications required for highly stressed engine parts. No deviation can be tolerated and constant laboratory control must be maintained. With the spectrographic equipment three men can do the amount of work that formerly required thirty.

The operation of the equipment is simple and under-

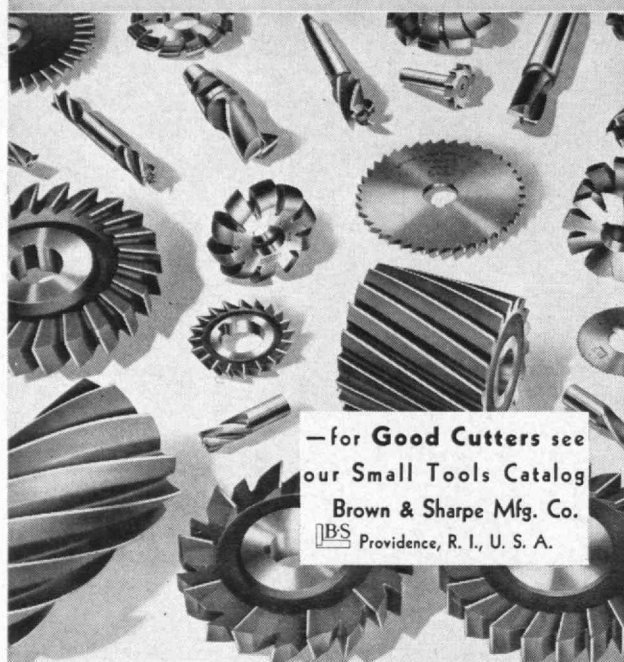
standable. Pellets from chips of the material form the electrodes of a high voltage circuit. Current passed through this circuit causes these electrodes to spark brightly. The total color of this spark is separated by a grating device into the wave lengths of the colors present and recorded on film. As each alloying element has a definite color characteristic when burned, analyses of the film for density of wave lengths quickly show the ingredients present and the amount of each.

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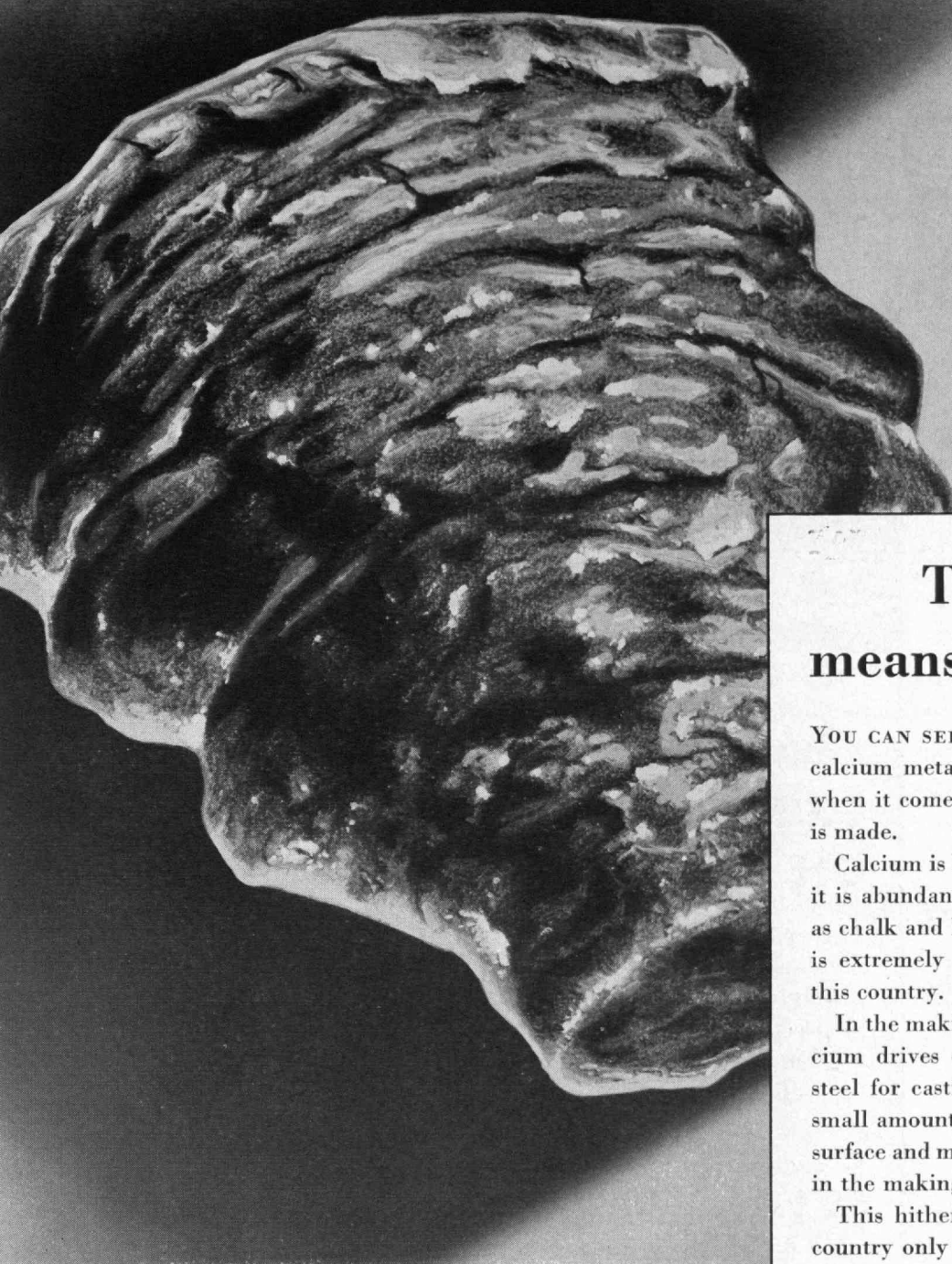
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## This "Carrot" means healthy metals

YOU CAN SEE why metalworkers call this lump of calcium metal a "carrot." This is the way it looks when it comes from an electrolytic cell in which it is made.

Calcium is a soft, silvery-looking metal. Although it is abundantly present in such common materials as chalk and limestone, its recovery as a pure metal is extremely difficult. Yet it is vitally essential to this country.

In the making of stainless or high-alloy steels, calcium drives out impurities, giving cleaner, better steel for casting or rolling. In magnesium casting, small amounts of calcium improve the finish of the surface and minimize scaling. Calcium is an essential in the making of many metals.

This hitherto rare metal has been made in this country only during the past few years. Before Europe exploded, the United States was dependent upon France as a source of supply.

But back as far as 1935, thinking that this country should have a domestic source, ELECTRO METALLURGICAL COMPANY, a unit of UCC, started a major research program. After four years of work . . . as French supplies dwindled . . . a plant was put into operation for the manufacture of the gray metal. Today, ELECTRO METALLURGICAL COMPANY produces many times as much calcium metal as this country ever imported . . . and production is increasing.

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**BETTER HEALTH!** Pure calcium metal is used as a drying and purifying agent in the manufacture of certain new disease-fighting drugs.



**CHEMICAL HELPER!** Calcium is necessary in making a number of rare metals—many of which heretofore were unavailable commercially—and all of which are vital.



**METAL-SAVER!** In the melting of copper scrap for use in certain types of electrical equipment, calcium is used as a purifier and a restorer of electrical conductivity.

BUY UNITED STATES WAR BONDS AND STAMPS

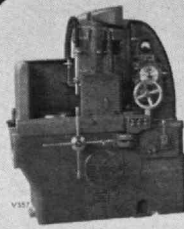


**"PUT IT ON THE BLANCHARD"**

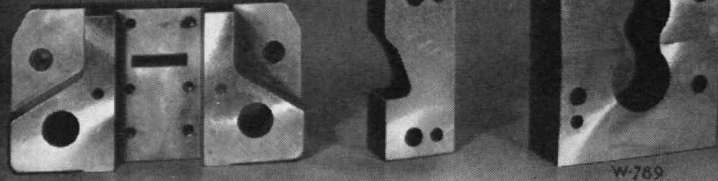
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the one illustrated.



*Dies sharpened on the  
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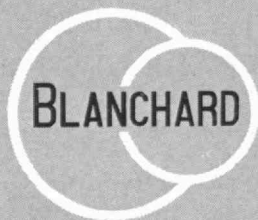


*Tool makers - Die makers*  
**GRIND DIE JOBS LIKE THESE  
ON THE BLANCHARD No. 11**

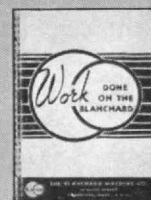
The cylinder wheel covers the entire surface at every revolution of the work. High work speed and ample supply of coolant eliminate any danger of heating the work. The Blanchard is a heavy and rigid machine, permitting the economical use of free, soft cutting wheels. "Excellent — Fast — Accurate" says this customer after more than a year of tool room use.

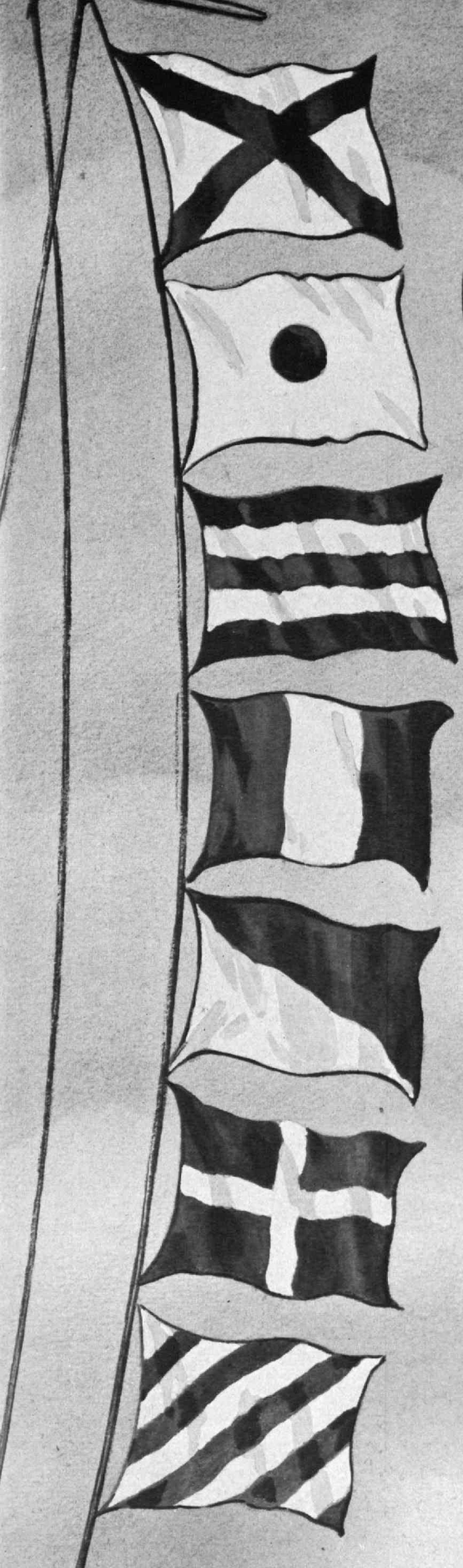
Savings in time and money, and opportunities to release men from grinding to other work, make it logical to install Blanchard Grinders in every tool and die shop.

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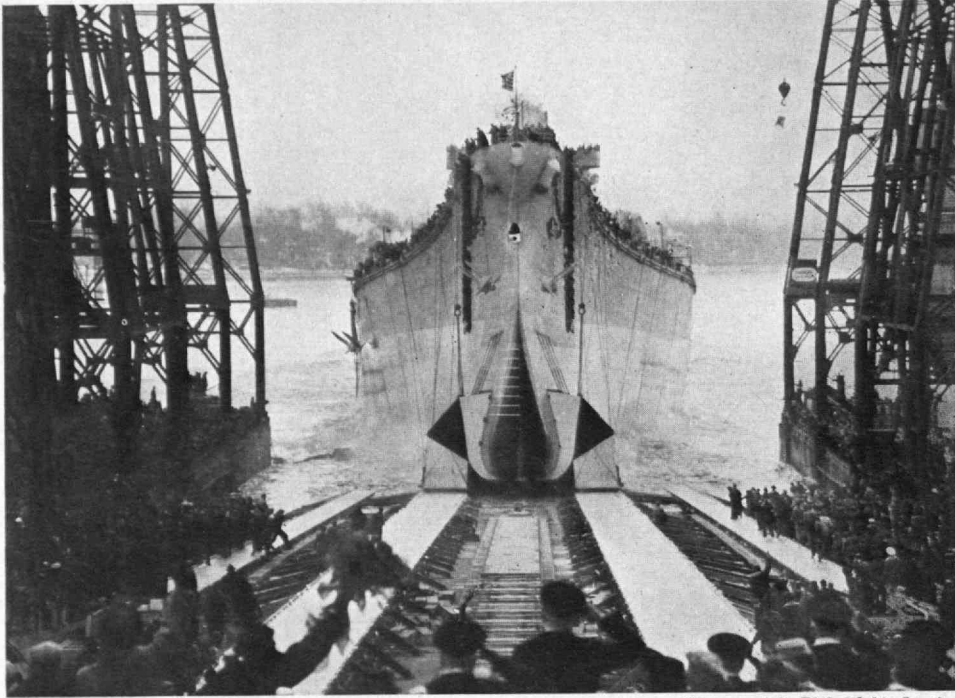
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*Courtesy of the Philadelphia Inquirer*

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*Neapco* employees are proud of their part in supplying Universal Joints for this, the World's largest battle-wagon.

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*December 1941 — Awarded Navy "E" and Bureau of Ordnance Flag*

*July 1942 — Awarded Army-Navy "E" with star*

*December 1942 — Awarded Army-Navy "E" with two stars*

D. K. BULLENS '09, *President*



*Eyes straining into the dark,* spindrift blowing back into his face from a smothered wave, faint-edged with phosphorescence—what thoughts are racing in the back of that vigilant face?

A nostalgic thought, of course, for homes whose warmth envelops him a thousand miles away. A new realization of what industrial, all-out production means in terms of safety and victory.

Yes, but behind it all an equally insistent query he will want answered when he comes home to pick up the old threads of his aspirations.

---

*Let's file our answer now.*

It will be a long answer—more production; more bonds purchased; giving up frills and luxuries; and sound, practical post-war plans that can be put to work quickly when he comes home.

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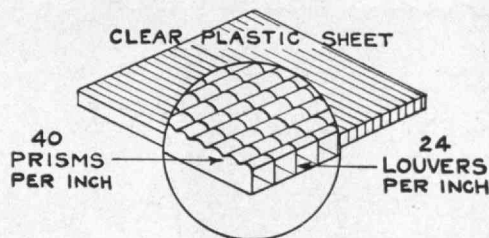


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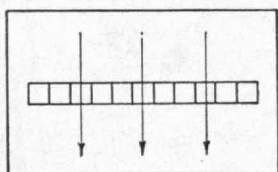
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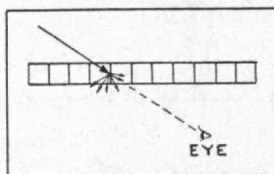
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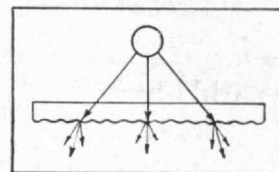
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Sheet is composed of clear plastic alternately spaced with thin white translucent or black opaque plastic louvers. The clear plastic has high transparency for light transmission.



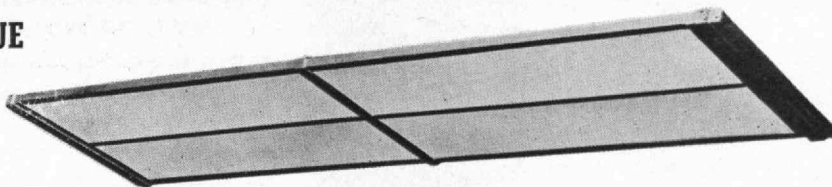
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**STOP EYE FATIGUE**  
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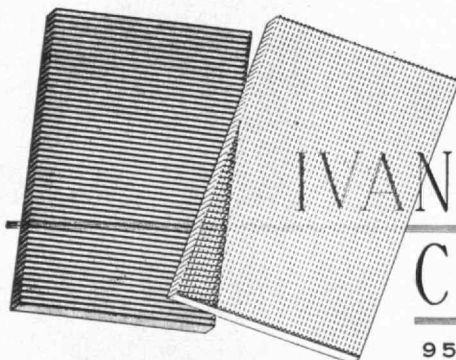
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TO

**VICTORY**

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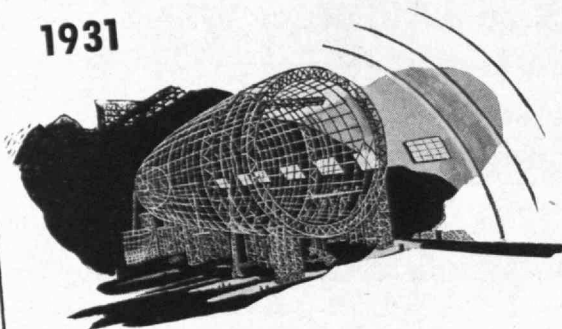
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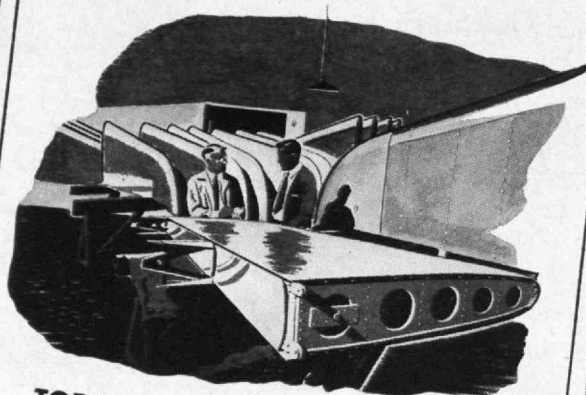
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1943



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Richard Tucker

A corner of Pump Court in the Middle Temple,  
before the Germans bombed London

VOLUME 45

NUMBER 5

# THE TECHNOLOGY REVIEW

TITLE REGISTERED U. S. PATENT OFFICE

EDITED

AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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From a photograph by Andreas Feininger from Black Star

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*Chemical and Engineering News*

*The Caracol, a storage basin for the solar evaporation of salty water drained from land once covered by Lake Texcoco, Mexico City. As described in Chemical and Engineering News, the snail-shaped canal, 12 miles in length, has a total evaporation capacity of 10,000,000 tons of water yearly and can produce each year about 100,000 tons of salts, including caustic soda, sodium carbonate, potash, sodium sulphate, and borax, as well as sodium chloride.*

# THE TECHNOLOGY REVIEW

Vol. 45, No. 5



March, 1943

## The Trend of Affairs

### *Sponge for Scrap?*

TWO specters have raised their ugly heads in the American steel situation — one a war visitor, the other looking as if he intended to settle down and stay. The transitory apparition has been created by the clamor for more scrap steel and iron to feed war-hungry furnaces. The supply of scrap cannot respond so flexibly to demand as does ore from the mines, for scrap is essentially a by-product. A considerable quantity accumulates even in the worst of depression years, while no amount of coaxing in periods of all-out production can radically increase the supply. But the steel industry has long been geared to processes which demand about as much low-carbon scrap as they do high-carbon pig iron. Since increasing the ratio of pig to scrap involves some adjustments in technique, a material which would be a direct substitute for scrap would have advantages over an increased supply of pig iron. A possible answer to this problem, according to some commentators, appears to be found in sponge iron.

The more durable-looking ghost is the threat of exhaustion of first-grade iron-ore reserves. In Europe this specter now sits in on board meetings, for except in Sweden and Spain, that subcontinent no longer possesses any important ore bodies assaying about 50 per cent iron, the kind our own industry is accustomed to. That fact is undoubtedly slated for an important role in world history. British and German steel men now smelt 30 per cent ores and find, not surprisingly, that costs are higher. Nor will our own reserves of high-quality ores last forever. Though iron is plentiful in the earth's crust, the same cannot be said for ore deposits of commercial size largely uncontaminated by other substances. Not that entirely satisfactory steel cannot be made from poorer ores. But the processes,

if carried out on traditional lines, become increasingly complex. Here also the proponents of sponge iron declare it to offer a more direct solution.

While the sponge-iron process is subject to many variations according to the needs of specific ores or the availability of specific fuels, it is fundamentally the same method used by primitive man at the beginning of the Iron Age and continued until displaced by the blast furnace about 600 years ago. In this process, finely divided ore is heated at rather moderate temperatures in a reducing atmosphere — for example, one rich in hydrogen or carbon monoxide. The oxygen is removed from the iron particles without their being melted, for temperatures are in the order of 1,200 to 1,800 degrees Fahrenheit instead of from 2,700 to 3,000 degrees Fahrenheit or higher as in the blast furnace. Actually reduction of all the iron oxide is difficult, but this fact is not necessarily harmful, for the output of the reducing or roasting furnace can be fed to an open-hearth or electric furnace in which the remaining 10 per cent or so of iron oxide is stripped of its oxygen.

A more difficult problem is presented by the fact that many of the impurities commonly found in iron ore are quite unaffected by the reducing treatment and must be freed from the iron oxide or iron particles before or after this treatment. Sometimes it is almost impossible to grind the ore fine enough so that every particle of iron oxide is dissociated from every particle of the gangue. If purification of the ore is carried out before the reducing furnace, it can be carried out just as easily before the blast furnace, but the sponge-iron process has the following advantage: Since the output of the sponge-iron furnace is still in the form of particles, these can be put through a magnetic separator, the iron particles being kept, the rest being discarded. The powdered iron, which is low in carbon, is then briquetted.



Advocates of sponge iron point to the lower temperatures involved and to the fuel savings per ton of iron which should result therefrom. The process is not dependent on coke, as is the blast furnace, but can use virtually any fuel — natural gas, oil, or a variety of coals. The apparatus required is considerably simpler than that involved in a blast-furnace plant and may permit exploitation of bodies of ore too small to make the erection of a blast furnace profitable. The Bureau of Mines even talks of using spare rotary kilns from the cement and lime industries. Congress has given the Bureau of Mines \$600,000 to erect pilot plants and to study methods which can help relieve the scrap shortage or make use of untouched iron-ore deposits (of which many are widely scattered over the United States).

All this is no news to steel men, who have been playing with sponge iron in various parts of the world for many years. Research on a large scale has been privately undertaken and abandoned in this country. A plant with a capacity of 100 tons a day was erected in Japan in 1927. Although it was said to operate satisfactorily using a beach sand containing only 20 to 25 per cent iron and to result in a finished briquette containing 75 per cent iron, it likewise has been reported to be abandoned. Two pilot plants are known to exist in Germany, but that nation, although under the sternest compulsion to make the most effective use of its quite poor ores, has apparently stuck to the more orthodox methods. The attitude of the technical press to the recently revived interest which Washington has shown in this process has ranged from skepticism to sarcasm. When the War Production Board asked an advisory committee from the National Research Council and the National Academy of Sciences for opinion on the process, a distinctly discouraging report was received.

Nevertheless, the W.P.B. has allowed \$450,000 to the Republic Steel Corporation for the erection of a sponge-iron plant having a capacity of about 100 tons of iron a day, the iron to go into electric furnaces for the production of high-grade alloy steels. The plant should be ready late in 1943. Generous supplies of a high-grade iron oxide — in this case the by-product of another ore concentration — give this plant unusual advantages. A plant producing sponge iron at an annual rate of 30,000 tons has for many years been in successful operation in Sweden, and for over a year and a half a plant in Pennsylvania has been producing sponge iron for special uses, such as powder metallurgy, which can stand somewhat higher costs for materials.

This evidence becomes less confusing if it is borne in mind that sponge-iron processes can be divided into two general classes — those which start with ores of exceptionally high purity and which use substantially sulphur-free fuels; and those which are intended to utilize low-grade ores, any fuel which is available at low cost, and a minimum of plant. The Republic installation will use a high-grade magnetic ore concentrate with coke oven gas as a fuel; the Pennsylvania sponge-iron plant uses mill scale, which is pure iron oxide, and petroleum coke; and the Swedish plant uses a notoriously excellent ore. Swedish sponge iron for powder metallurgy uses charcoal as a fuel, but most Swedish sponge iron is made with waste gases from coke ovens.

The great opportunities and the great problems, however, are in utilizing low-grade ores. Steelmaking is a game in which this nation can afford to lose no bets. Eventually we shall have nothing but low-grade ores; hence it is well that a thorough exploration of the possibilities of sponge iron is being made.

### *Old for New*

**B**OOKS mean headaches as well as pleasure, and headaches not only to authors and students but also to production men in a good many callings. Authors in a war-torn world have more subject matter to deal with than they can conveniently handle; production men are finding that they have less of everything than they need. As a consequence, in numerous ways the publishing industry is falling back on techniques and materials which were standard in earlier days and now are being revamped to meet the needs of high-speed production.

Stitching wire — the fine-gauge tinned steel wire used to staple magazines, newspaper supplements, pamphlets, brochures, sales-book continuous forms, and so on — is most efficient when it is most inconspicuous. Readers usually pay no attention to it unless it fails in its task. Last year, 2,500 tons of it were used. This year, it is an increasingly critical material. Hence recourse is being had to paste, to glue, to sewing with thread. If a 16-page booklet, in an edition of 100,000, is not wire stitched, three miles of wire are saved. When paste, glue, or sewing is not feasible, the number of wire stitches is being reduced. Thus the supply is being stretched.

Limitations on steel show up in another department of publishing — the manufacture of loose-leaf binders. In these, wooden covers are cloth covered in standard fashion, wooden clamps replace steel in some versions, plastic binding posts occupy the place of metal in others.

### *Slaughter on the Home Front*

BY EDWARD R. SCHWARZ

**A** SHUTDOWN of the nation's entire shipbuilding and aircraft industries for 54 days would be featured by the press throughout the world as a major calamity. The time lost by reason of nonfatal injuries to workers in 1942 was equivalent to such a disaster. Add to this the 47,500 deaths of workers by accident and think of the 22,000 heavy bombers that might have been built. The home-front casualty list for what amounts to our first year of the war totaled 93,000 dead and 9,300,000 injured, at a cost of \$3,700,000,000.

Among American men in the 22-to-38-year age group, accidents are, in general, the largest single cause of death, and for the entire population they rate fifth place, exceeded only by heart disease, cancer, cerebral hemorrhage, and nephritis. This knowledge must make the Axis powers rejoice; the accident death loss is equivalent to more than tenfold the lost time due to industrial strikes. One of the best allies of the Axis powers is our carelessness. Nor is it confined to industry, where about one plant in eight has an adequate safety

program. Off-the-job accidents caused 2,350,000 non-fatal injuries and 29,000 fatalities. The man power lost as a result of these accidents might have supplied us with two score battleships, several hundred destroyers, more than 10,000 Flying Fortresses, or nearly 200,000 light tanks.

The automobile continues as a leading cause of accidents resulting in death, with a toll for 1942 of 27,800 fatalities. We have created a weapon which in time of peace as well as war is taking a worker's life every 45 minutes of working time. Even with reduction in the number of cars on the road and the present conditions of rubber and gasoline rationing, the dimout is causing added hazard for those who walk and drive. The automobile driver is truly the modern juggernaut.

In spite of man's pride in his ability to walk erect, with the resultant freeing of his hands for the exercise of marvelous manual dexterity, he is not too efficient, since falls account for the second largest number of accident fatalities. More than 10,000 persons a year are killed by falls in their own homes; many more are painfully injured. For instance, not so long ago a large insurance company reported that a man, taking off his pajamas to get dressed, stubbed his toe in the process and banged his knee against a dressing-table bench. The pajamas fell down around his ankles, tripping him once again, and in the resulting fall he seriously sprained his wrist. The comic-strip banana peel could do no better and is typical only of how funny (and how tragic) our failure to maintain our uncertain equilibrium can be.

Too often we fall from the frying pan into the fire — for burns are third in the general list of accident causes, rating second in frequency as a cause of death in the home and accounting for over 8,000 deaths. Public benefactor in an imposing way is the common match, but in Jekyll-and-Hyde fashion it is also Public Enemy Number One. In how many conflagrations does its tiny glow flare fearsomely! Careless use of matches is one of our worse crimes against public safety.

From one extreme to another is no jump at all in accident causation. Next to fire as a cause of accidents is water. We seem to try to drown those whom we do not burn. At least, we kill more than 6,000 a year that way. Not content with these normal activities, we shoot several thousand more and fatally poison about as many. In the 15-to-24-year age group it is interesting that fire-arms are the largest single cause of accidents and third largest in the 5-to-14 age group. As with the motorcar, refusal by the individual to assume the responsibility that automatically goes with the possession of such a dangerous weapon results in injury and death not only to the heedless user but often to the innocent bystander as well. We pride ourselves as a nation on our efficient mechanization both for war and for

peace, but in the vital matter of fire fighting we allow our municipal fire departments to struggle along with antiquated apparatus. A recent survey by the National Fire Protection Association shows that in 365 cities of more than 20,000 population, 52 per cent of the pumpers and ladder trucks are over 15 years old and half of them are over 20 years of age. In 38 such cities, no pumpers in service are less than 16 years old. What can happen in such circumstances is illustrated in a fire in one of our New England mill cities, where three pieces of apparatus broke down and went out of service during the blaze. That this fire occurred on December 7, 1941, simply indicates that on the eve of our biggest war we were fighting on the fire front with too little; because of shortages of critical materials, it is now too late.

The whole situation is a challenge to our educational system. From the kindergarten to the graduate school of science and engineering, we should be stressing over and over again the individual's responsibility for his own and his neighbor's safety. Until our program of instruction supersedes ignorance with knowledge and instills an abiding sense of care and responsibility, the slaughter will continue. A safety program by industry can be only partially effective in its major aspects, even though it functions with amazing efficiency in the plant and succeeds in some measure in carrying over to the



Herald Square in New York City, opened up to the camera by demolition of the Sixth Avenue elevated railway, illustrates still how accidents happen.

Acme





Rosas from Three Lions

*Efficiency and adaptation as expressed in part of Costa Rica's transportation industry. The small dugout is held in place in the larger one by means of a metal catch. The mast of the larger vessel is stepped through an opening in the bottom of the "dinghy." When the traders must separate to supply outlying villages accessible only by rowing up creeks, the mast is unstepped, the hole is plugged, the little boat goes overside, and one man rows away in it while his mates, restocking their mast, get under way again.*

worker's home and his off-duty pursuits. Recently a motion-picture study of the daily activities of workers in a large Massachusetts industry was made in order to demonstrate strikingly and convincingly how a real safety program operates in industry. The task was being most satisfactorily completed when the final scene, showing the workers leaving the plant at the end of the day, was photographed. This scene had to be entirely deleted because nearly every unsafe practice imaginable under these conditions was committed as soon as the whistle blew. While American industry during the last few years has reduced lost-time injuries by two-thirds in frequency and has halved the severity of the remaining third, off-the-job accidents were gaining in frequency and severity, with more than half of all accidents occurring in homes.

To fight for the safety of our loved ones in a bitter World War avails us little when our home-front casualties far exceed our battle losses and when this crippling of the home front makes the war effort just that much less effective. Our second front is manned by the man behind the man behind the gun. We can keep him alive if we will!

### *The Carolina Bays*

THE curious craters which pock the Atlantic coastal plain in North and South Carolina, first discussed nearly 60 years ago, came back into the news in grand style in the early 1930's, revival of interest in them being a result of aerial photography. The airplane and the camera permitted an over-all view of the mysterious depressions, showing hundreds of them in areas where usual topographic mapping had discerned only one or two. Studying the photographs, geologists soon sought theories to explain the origin of the oval craters, which are bordered by rims of sand thickest usually near the

southeastern ends and which lie with their long axes significantly parallel and running northwest-southeast. Bombardment of the earth by an enormous shower of meteorites which struck at an angle from the northwest received great notice as a possible explanation of the depressions.

Describing the bays, sketching scientific studies of them, discussing various hypotheses assigning to them a terrestrial origin, and analyzing at length the hypothesis that they are meteorite scars, Douglas Johnson, professor of geology at Columbia University and onetime assistant professor of geology at M.I.T., advances a hypothesis of complex origin.\* The central problem, he explains, is to account for the form and orientation of the bays, that is, for the fact that they are oval rather than circular craters and that their major axes are generally more or less nearly parallel in any given locality, trending almost always between south and east. The hypothesis of complex origin, summarily stated, supposes that "artesian springs, rising through moving groundwater and operating in part by solution, produced broad shallow basins occupied by lakes, about the margins of which beach ridges were formed by wave action and dune ridges by wind action."

Explanation and exploration of the application of this hypothesis constitute seven chapters of Professor Johnson's book. Quite apart from its scientific significance, the volume is of marked interest as an example of able and thoroughgoing analysis of a baffling and fascinating question; as an illustration of how the development of a new device — in this case, the airplane — may give new strength to an ancient science; and as an engaging discussion of a topic that is engrossing if only because man can do nothing about it. (*Concluded on page 286*)

\* *The Origin of the Carolina Bays* (New York: Columbia University Press, Columbia Geomorphic Studies, No. 4, 1942). xiii + 341 pages. \$4.50.

# Engineers in Wartime

## *Shortage of Technically Trained Men Greatest Problem Posed by War*

BY CLARENCE D. HOWE

COMMENCEMENT ADDRESS TO THE CLASS OF 1943

A DEGREE from the Institute is both a great asset and a real responsibility. In the more than 35 years that have elapsed since I received my own degree, I have practiced my profession in several parts of the world. Wherever I have been, it has been my experience that a degree from Technology is accepted both as a certificate of competence and as a guarantee of integrity. The responsibility will be yours to see that nothing you may do will in any way lessen the prestige which attaches to a degree from the M.I.T.

You are leaving the Institute at a time when your welcome either into the armed services or into industry can be guaranteed. I know of many acute shortages, such as shortages of steel, rubber, petroleum, nickel, and copper, but no shortage is so acute as that of technically trained young men. Those of you who are physically fit have entered, or probably will enter, the armed services, in the activities of which your technical training can and will be used to the full. This is a mechanical war, and the problems of operation, maintenance, and supply rival in magnitude the most difficult engineering problems of all time. Modern science applied to war production has brought forth instruments of war that can be operated successfully only by those having an engineering training. In many circumstances, my experience has been that machines can be produced more rapidly than expert operators for those machines can be trained. Young engineers absorb training quickly. Though for other professions service in the Army and Navy may mean lost time in advancement in a specialized calling, this situation is not true of engineering. Those of you who return from the war will have obtained professional background such as can hardly be duplicated in any peacetime careers. You will not only have served your country in its hour of need but you will have had invaluable experience within the scope of your chosen professions.

No doubt many of you, for reasons of physical condition or specialized training, will find your places in war research or war industry. If so, you will enter an industrial activity moving at a higher tempo than ever before in history. Research is being rushed forward in every direction. Application of research is being carried on at a pace that would be considered reckless were it not for the urgency of wartime demands. In ordinary times, a new development moves from the laboratory to a pilot plant, where the process is proved from the point of view of production before going into full-scale manufacture. Under the pressure of war needs, the pilot plant is being eliminated, and we are going from the laboratory direct to full-scale application. Under the lash of necessity,

developments which in normal times would take years are being compressed into months. The story of the contribution of science toward the winning of the war cannot, for military reasons, be told at this time. But when it is told, the place of the scientist will be second to none in the march toward victory.

By far the majority of wartime inventions have a peacetime application, and the postwar world will reap these fruits of war in the form of new industries and new improvements in our standard of living. Those of us who are concentrating on war production are hardly in a position to predict industrial developments of the postwar period, but certain probabilities are obvious. For example, aluminum and magnesium will be obtainable in tremendous volume at probably half their pre-war cost. Rapid strides are being made in the manufacture and use of plastics, and many new chemical war plants can be converted readily to that industry. Synthetic rubber that can be specially made for special purposes will be available, as will abundant quantities of high-octane gasoline. The combination of these factors certainly indicates radical new designs for the postwar automobile.

More spectacular still will be developments in aviation. Since the war began, transatlantic and transpacific aviation has become a commonplace. Radio detection instruments developed for war purposes will, when applied to air transport, probably remove present disabilities arising from weather and fog conditions. The pressure cabin, now being used in fighter aircraft for high-altitude work, will be incorporated in transport planes, enabling flights at high altitude without discomfort to passengers. A tremendous expansion in transportation by air is a certainty.

Those familiar with the scientific advances now being applied to modern warfare can foresee many types of development quite as spectacular as the two I have mentioned and equally important to postwar living. I cannot be at all pessimistic about the task of postwar reconstruction. I wish only that I could have your opportunity to take an active part in rebuilding the postwar world. I am sure that you will build a better world than the one we have known, a world in which peace and freedom will be the heritage of all and in which aggression and domination will have no part.

Some eight years ago I was elected to the Parliament of Canada and became a member of the Canadian Government. For reasons that I cannot understand, the entry of a professional engineer into the work of government is unusual; in fact, I believe that I am the second engineer in the British Empire to become a member of a



government. I have found that the training and experience of an engineer are useful in the work of government in these modern days when governments are very much involved with business problems. I suggest to you that should an opportunity come to enter public life, you think twice before refusing. In that field the problems related to engineering are likely to grow in number and complexity as the years go by. Probably because of my engineering training I was assigned, when war came, to a new ministry charged with the procurement of munitions and supplies for the armed services and with the organization of industry for full-out war production. Most Allied countries have found it desirable to call on civilians like myself to assist in procurement problems. In England, procurement for the army is in the hands of a civilian ministry of supply; that of airplanes is the responsibility of a civilian ministry of aircraft production; while that for the navy is the responsibility of the navy itself. In the United States, the organization of industry is a civilian undertaking, while procurement for the Army and Navy is the responsibility of the Army and Navy, with certain civilian assistance. In Canada, the Department of Munitions and Supply handles procurement for the army, navy, and air force and for all Allied governments, as a civilian task.

The mobilization of industry for war is a drastic and revolutionary operation. Great industries must be told to stop making their usual products and tool up for wholly new work, perhaps in a widely different field. New machine tools must be provided in tremendous quantity; in fact, the machine-tool industry governs the speed of change-over and must itself be expanded, as the first necessity. Plant extensions and new industrial plants must be designed and built. Management must be expanded to operate the augmented facilities, for a shortage of trained management is one of the major problems in the initial stages. Men and women who have never before worked in a factory must be trained as mechanics and machine operators. All these things go on while the expanding army, navy, and air force are pressing for weapons for new recruits. Industry is attempting to produce new products for which complete plans and specifications usually are not available, with the result that it must feel its way in working out time studies for the various component parts.

In these circumstances, confusion and lack of coordination inevitably become for a time the order of the day. Production of components gets out of step; distribution of raw materials breaks down; certain machine tools fail to come forward when required. I think it has been the experience of all Allied countries that the first months of war production have shown disappointing results.

As each breakdown in the production machinery occurs, it indicates its own solution. Gradually an efficient top organization is evolved, capable of bringing order out of chaos. To insure adequate raw materials and proper distribution of them, controllers are placed in charge of basic industries, with dictatorial powers to straighten out the industry for which each is responsible. Thus, production and distribution of steel become the responsibility of one controller, while others take charge of such industries as nonferrous metals, machine tools,

petroleum products, rubber, lumber, and any other which may hamper the war effort because of shortage in its output or inequality in distribution of that output. It becomes the duty of each of these controllers to mobilize his particular industry for war, to organize maximum production, to correct inequitable distribution, and to reduce nonwar consumption to a minimum. A system of priorities must be set up to provide that urgent war production, in the order of its relative importance, has the preference in obtaining raw materials and industrial capacity. Through the efforts of the controllers, each operating in a separate field, industry can be provided with its necessities, and the output of weapons, ships, and aircraft can be brought to the maximum. Over the controllers and priority officers must be coordinating officers, and over all must be a directing head, clothed with ample authority to make far-reaching decisions.

Interestingly enough, the war organizations of all Allied countries, though differing in detail, follow the same broad pattern. All have organized, or are organizing, their industrial capacities for full-out production on a scale far beyond anything that could have been anticipated in pre-war years. Today the Allies are out-producing the enemy countries by a wide margin, in spite of the five years' start of the enemy countries. Each month shows a wider gain in production for the Allies. The initial equipment for our armies has been provided already or is easily within the productive capacity of present-day industry. For ships and aircraft the demands are beyond the present supply and will be for a long time, but this situation is no longer true of a very wide range of ground-war weapons.

The actual buying of war equipment and supplies in a period of great industrial activity presents unusual problems. In ordinary times, the customary and sound system is to call for tenders and place the business with the lowest tenderer, consistent with satisfactory workmanship and the desired time of delivery. In the purchase and sale of new war weapons, neither the buyer nor the seller knows what the cost will be, with the result that competitive quotations are likely to be higher than are necessary. Purchase by tender continues to be the best method of buying ordinary supplies, but for new and unusual types of manufacture other methods must be resorted to. Our two governments have a common view that no large profits must arise out of war production. This is fundamental in present-day war purchasing. We must keep in mind, however, that profits are only a small proportion of the total cost and that the contract must also provide an incentive for rapid and low-cost manufacture.

As a means of controlling costs and profits, government purchasing agencies are clothed with wide authority to audit the books of any manufacturer and to renegotiate contracts at will. It is the common experience that as large plants swing into full production, costs of war materials tend to drop sharply. The government, therefore, takes power to renegotiate prices whenever an audit shows profits to be above the scale that has been established as fair and reasonable. In other words, the problem is to use the profit motive as an incentive to rapid and low-cost production (*Continued on page 252*)

# Toward the Mountain

## *An America at Peace in Years to Come Is a Goal Accessible to Skill and Courage*

BY KARL T. COMPTON

VALEDICTORY ADDRESS TO THE CLASS OF 1943

LAST year's Class was graduated a month early, experiencing only minor modifications of program on account of war conditions. You are being graduated a full term ahead of normal schedule. From now till victory is won, the Institute must proceed at a fully accelerated pace, with classes scheduled clear around the calendar. You are therefore the last class for the duration of the war to have the privilege of education at Technology under substantially normal conditions for the major portion of your course.

While the Institute will continue to maintain its traditional high standards for its academic degrees, the first priority in its educational activities is now given to its co-operation with the Army, the Navy, and the War Manpower Commission in their tremendous programs for training the youth of these United States to serve their country in the most effective manner within their power. Fortunately for us, the type and fields of education to which our institution is dedicated coincide to a remarkable degree with the educational needs officially announced as most urgent in this war effort. Hence no changes in point of view or objectives will be required of us, but only changes in schedules and somewhat more concentrated emphasis on things most practical. This statement is true for those students who will be permitted to continue toward partial or full completion of requirements for our academic degrees. In a much exaggerated form it is also true for those students who may be detailed to us by the Army or Navy, not as candidates for degrees but for special training along technical lines of great importance in prosecuting the war. Even they will be securing their education along the same basic lines for which they might have come to us in peacetime.

In a world whose normal economic and social processes are upset, as at present, the significance of graduation is apt to be disclosed in a somewhat distorted fashion. In fact, this has been the subject of various attempts at humor. A man who was associated with me on the Baruch Rubber Committee sent me a cartoon apropos of today's ceremony. It shows a college president — stoop shouldered, bald, and bespectacled, in the most notorious collegiate fashion — presenting a diploma to an earnest but rather dumb-looking senior with these words: "You're getting off to a good start in life — your diploma has a rubber band around it." Owing to the rubber shortage, we have refrained from presenting each one of you with a fat rubber band as our final effort to enhance the value of the educational program from which you have just been graduated. But we do believe, with the statement in the cartoon, that "You're getting off to a good start in life."

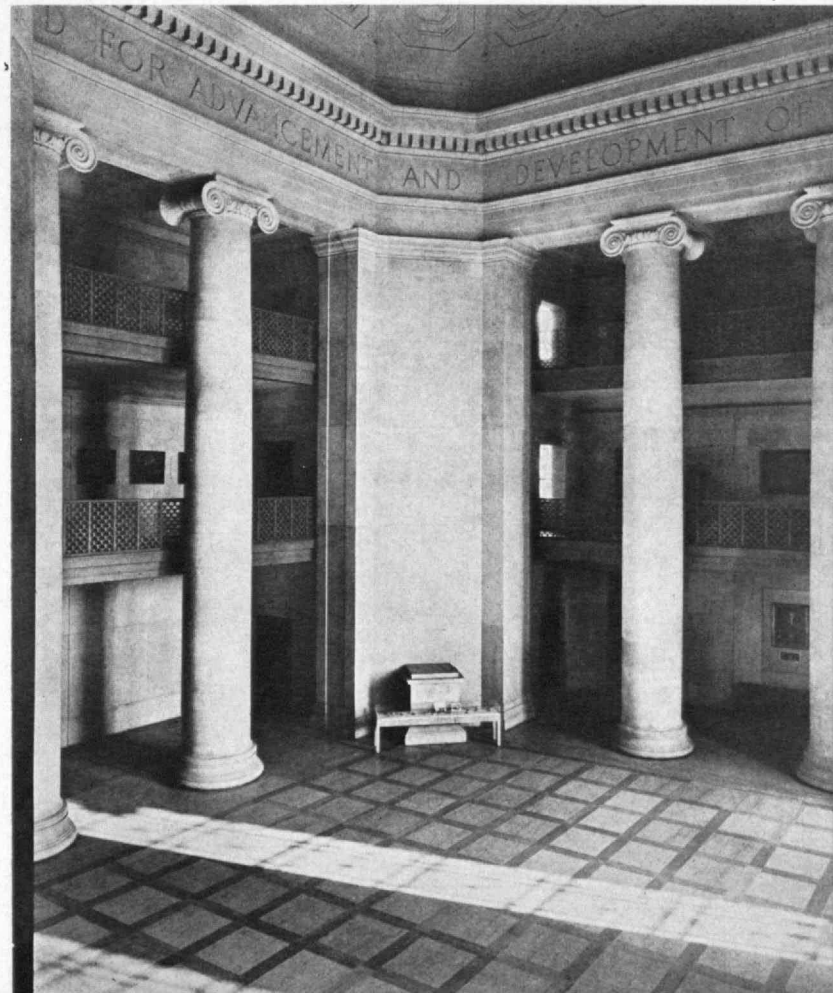
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I might give a number of arguments to back up this statement, some based on the relation of your training to the immediate necessities of the war and others based on more far-reaching considerations. I should like, however, to concentrate on just one aspect of the situation, which I know to be troubling many young graduates at this time. Some of them feel bewildered and discouraged. They have been working hard to secure a training which will be the basis of a hoped-for useful and happy career, and now they see this career buried in the debris of the world upheaval.

Such feelings as these are in themselves no disgrace: They are more likely to come to persons who have clear and intense objectives in life than to persons whose careers are as yet undirected. They are more likely to come to students in a professional school than to other types of students, whose careers are not yet directed and who therefore can be more easily diverted to the unexpected requirements of a new situation. The professional-school graduate may wonder, "What's the use? Through no fault of mine, I've been let down." I hope that what I have to say will be of help to any who have thoughts or worries in this direction.

*"For advancement and development" — the Rogers rotunda*

*Paul J. Woolf*





Let me therefore direct your thoughts toward the future, as is proper at a ceremony named "commencement." Looking to the future is a characteristic of youth and vigor. When a man begins to think more of the past than of the future, it is a sign that he is a has-been. When a man's thoughts are mostly directed into the past, his career, as Charles F. Kettering has remarked, is likely to be like that of a man driving an automobile while facing backward — he doesn't get very far, and he usually gets into trouble. While a person may find some comfort in thinking about past associations and experiences or may profit by analyzing the reasons for past mistakes, and while all his past is the foundation on which his future must be built, only the possibilities of the future give any significance to his further existence.

There are, however, several ways of looking ahead. One is simple curiosity; this is a sign of intelligence. Another is worry; this indicates weakness and lack of decision. Still another is planning; this, if combined with effort to carry out the plans, is the way to meet the future with a good chance of success. All of you are curious about what the future may hold in store for you; probably all of you have periods of worry; and all of you have more or less definite plans and hopes for the future. I hope that what I see ahead may be true and that a look at it may help you to reach it.

I see in the distance an America which is at peace; an America in which men and women are working at creative tasks with confidence and enthusiasm; in which free enterprise is still strong, though tempered with a higher degree of social responsibility and interdependence than formerly. In it will be joined more skillfully than before two great social principles: "the freedom of the individual" and "the greatest good for the greatest

number." Useful public-works projects will be carried out on a large scale to improve the comfort and efficiency of our communities. Old and new industries will hum to fill the deficiencies accumulated during the war, and to produce new and improved devices of great variety. Scientific research and engineering development will make a great surge forward as the energies which have been diverted to war efforts are released again to follow their normal creative channels. Meanwhile the standards of living, both cultural and material, will rise to new heights for all the people. These things will not happen in the United States alone, for centuries of experience have taught us that no one nation can long prosper at the expense of other nations. Our Canadian brothers to the north and our Latin American cousins to the south will share in this forward movement as, less intimately, must more distant peoples as well.

This vision of the future is like the view of a distant mountain as seen by a party which has set out to reach it or perhaps to climb it. Think of us as that party. From a distance the mountain stands out clear and distinct in its major details. Also clearly visible is the near-by environment, in which we can see the path ahead for a few hundred feet. But in between the near environment and the distant mountain are the foothills, range on range of hills and valleys which lie obscure and mysterious between us and our goal. What particular difficulties we shall have to overcome in this intervening territory we can only surmise in a vague way. We know only that to reach the mountain, we must take the trail ahead and do our best to surmount the difficulties as we encounter them. Some we may be able to circumvent by choosing our course skillfully. Others we shall have to climb the hard way. But we know that the mountain is there, and we know that we can reach it if we have the requisite determination, strength, and resourcefulness.

Like this mountain is our future, as we hope to have it. We know that it is there, if only we as individuals and as a nation have the determination, strength, and resourcefulness to achieve it. Right ahead of us the path we must follow is clearly defined: It is the path toward the winning of the war. Each of us has the first part of this path laid out for us — by Mr. McNutt or Mr. Stimson or Mr. Knox, or by our own conscience. Some of you will go immediately to work in an industry essential to the war, some of you will go directly into one or another of the armed services, some of you will join groups engaged in the development of new technical instruments of war, some of you will proceed with further training to increase your effectiveness in a special field, and some of you will be instructors, thus multiplying your effectiveness by training others. Where these activities will take you, or how long they will last, we do not know, but we do know that they lead toward victory and that this is the first essential stage of that journey toward the high mountain of our future.

In between this immediate objective and our goal stretches that region of the foothills, a sort of no man's land, where anything can happen. In it come the future events of the war, the problems of establishing the peace, the job of reconstruction and readjustment, with concurrent economic and political (*Continued on page 256*)

*Winter along Charles River Road*

*John E. Tyler, '40*



# Scientific Man Power

## *Adaptable and Essential in the Prosecution of the War, It Will Find Greater Demands in Peace*

BY PAUL V. McNUTT

BACCALAUREATE ADDRESS TO THE CLASS OF 1943

THIS hall in which we are meeting — this hall in which I am so honored to be with you on the occasion of this wartime baccalaureate service — has long been dedicated to music, one of the sweetest of the arts of peace. We are meeting in Symphony Hall today, I know, because another building, in which this ceremony traditionally takes place, is devoted continuously to the needs of the augmented wartime enrollment of your institution. Not even for the brief duration of the baccalaureate exercises is it possible for us to gather in Walker Memorial.

The 338 young men and women whose graduation is the occasion of our meeting are today in academic dress. But we know that tomorrow — and in saying tomorrow I speak only semifi guratively — approximately half of these graduates will wear the uniform of the Army, the Navy, or the Marines. And we know that those who continue as civilians will immediately enter the service of industries which are engaged in full wartime production or will enter the civil service of the United States Government itself. The very date of this ceremony — January 31, instead of some day in June — reminds us that you, today's graduates, worked steadily at your tasks throughout the past summer, the earlier to enter these vital services.

Beginning your studies, as you did, while the German armies and the *Luftwaffe* were first ravaging Poland, you have grown to intellectual maturity in the heart of this great institution at a time of crisis, when the M.I.T. has patriotically placed its incomparable facilities and equipment at the service of the nation. Like our other fine American technological schools, it has had its operations swollen by war research contracts with the Army, Navy, and other government agencies. The student enrollment, because of the establishment of special war-training courses and the presence of members of the armed forces engaged in following them, has been abnormally high. Housing has been tight. Some of the usual amenities of undergraduate life have been lacking. You have seen your field house and a large portion of your playing space taken from you for reasons of military necessity. All kinds of readjustments have taken place in your institutional life, as in your lives as individuals. The teaching and research staffs have been more than doubled. At the same time, large numbers of the regular staff have been given leave to accept special assignments with the war agencies of the United States Government. Of the regular staff members remaining at the Institute, over 200 are engaged full or part time directly on war work. There have been inconvenience, hurry, disruptions, and there will be more.

That the Institute has been called upon to play an important role in the war effort, or that it has accepted all the responsibilities placed upon it, is not surprising, for the ideal of public service has been one of its intrinsic qualities since the day of its foundation by William Barton Rogers during the Civil War. In *this* war, where technological superiority spells the difference between defeat and victory, the United States prizes more highly than ever its technological institutions. Nowhere in the country, except in such great educational centers of research as this, is there a comparable reserve of scientific man power, of new technological ideas, of laboratory facilities. In normal times, such institutions contribute to the education of our people, to the operation of our industrial economy, and to the increase of scientific knowledge. In time of war, they contribute incomparably to the fight for victory.

Your country knows, for example, that every naval constructor now in active service has done three years of graduate work in your institution after being graduated from Annapolis. Technology Alumni include the chief aeronautical engineers for the Army and Navy, innumerable test pilots, and the engineer in charge of the construction of the Alcan Highway, that great co-operative link across Canada between the United States and Alaska. As though in preparation for these services, you pioneered in founding your Department of Aeronautical Engineering, your Department of Chemical Engineering, and your Department of Electrical Engineering.

In addition to the great numbers who are fighting in strategic positions on the industrial front, nearly 4,000 of your widespread Alumni are at present in the armed services of the United States. This list lengthens each month. Some are admirals and generals, but all ranks include your graduates. Some have already given their lives. Some are missing. Some, we know, have been made prisoners. To all, we pay tribute.

I wonder, by the way, whether we shall ever learn of the reaction of one group of your Alumni on the occasion of a recent visit which they received from another Alumnus. I refer to one of the alumni clubs which, when last heard of, was quite active — the M.I.T. Association of Japan. I wonder whether they *enjoyed* the visit which they received not so long ago from their old friend, Major General James H. Doolittle of the Class of 1924. General Doolittle is at present quite busy in Africa, but I have an idea that he does not consider his visits to his Japanese fellow Alumni to be at an end. Those alumni reunions, I think it can safely be said, have barely begun and may be expected to be resumed at



the earliest convenient opportunity — convenient, that is, for General Doolittle.

I do not mean, of course, to indicate that in the loyalty and patriotism of their alumni, American technical schools differ from any other institutions of learning in this country. It so happens, however, that the contributions of technologically trained graduates are of particular value at this time. And in varying ways, the country has shown its appreciation of this fact. To a greater extent than with alumni of other kinds of institutions, your graduates are instantaneously welcomed, whether in uniform or not, into employment in the precise fields for which they have prepared themselves. Only the graduates in Architecture, I suspect, may find themselves designing objects and structures slightly different in character from those with which they had originally expected to concern themselves. But their work, too, is cut out for them in advance.

Furthermore, you have been relatively unaffected, so far, by selective service. In contrast to the last War, it has been a recognized national policy in this conflict to maintain, expedite, and increase the education of young men and women in the sciences, in engineering, and in medicine. If we were to know certainly that the crisis of this war would be passed in 12 or 18 months, sound policy would dictate calling out from our educational institutions every available man to hasten the ultimate victory. A greatly protracted war would force us, perhaps, to similar action. At the present time, we are taking every possible advantage of our ability to continue the training which provides our industries and armed forces with the needed technical talent.

Modern techniques of war and modern war equipment are based to a large extent on applications of the science of physics. The development and manufacture of such equipment have placed a heavy load on the restricted number of physicists. This demand is constantly increasing, and at the same time a new demand — a demand for persons trained to *operate* this new equipment — is rapidly becoming enormous. Many colleges and universities are now training great numbers of enlisted men and officers in advanced technical courses, and their numbers will increase many times throughout the coming months, when further Army and Navy training programs begin. This work must go on. Physics, of course, is far from being alone in its strategic wartime importance. Indeed, the list of courses and occupations considered by the War Manpower Commission as justifying military deferment of undergraduates and graduates alike reads in large part like the curriculum of this institution. This very fact, I think you will agree, amounts to a tribute from the nation at war to your technological wartime usefulness.

The recent lowering of the draft age, at both the under and the upper limits, has put into practical application the discovery which we have all heard inadequately expressed in the words, "This is a young man's war." What these words usually mean, of course, is that on the fighting fronts the speed, resiliency, and adaptability demanded by this war are such that in general only youth can supply them. We all know that there are exceptions, or rather extensions, to this statement. We know, for instance, that the young men in the grueling

fight to victory are often led by older officers who are mature and experienced. On the fighting front a combination of youth and leadership is necessary to win the day.

In a very interesting way, I think, this situation is paralleled on the technological front. Nowhere — not even in the midst of blitzkrieg, which science made possible — is the rate of modern progress more rapid than in science itself. The first stage of every major operation of modern warfare may be said to be fought in the laboratory. And stage follows stage with incredible swiftness. Though difficult for the layman to believe, I am assured it is a fact that techniques and information which were unknown five years ago are today being included in *elementary* courses in your classrooms. The developments of aeronautics seem almost as swift as flight itself. Because of the secrecy made necessary by war, those of us outside the field have received only hints of the breath-taking application of electricity to entirely new aspects of communications — developments which, it is promised, will burst upon an astonished world after the war. The shortage of tin has brought swift reply from the metallurgical laboratories. Within a few years you here at the Institute have brought a theory of meteorology to such practical use that it has become our official weather-forecast method. And at the same time the theory has been so simplified that only the most advanced students require the facilities of technical schools in their studies.

On a front which moves with such speed as this, one is tempted to say that here, too, "This is a young man's war." In a sense one would be correct. Certainly many of the recent advances in aircraft design, methods of communication, medicine, food technology, and transportation have been made possible by the pioneering effort of teams of young men working in laboratories. Young men who grow up with new knowledge as it develops, who move along with the accelerated march of science, are unquestionably in a strategic position. And, of course, from the ranks of the young, science must receive its recruits if it is to continue to exist at all. Yet in science, no less than on the fighting front, youth has its leaders and gratefully pays homage to them. It is among these elder men, among these seasoned leaders in the laboratories, these experienced engineers and scientists, that one of the most interesting wartime developments in the field of science is taking place.

In all of the regular Courses offered at this Institute, except in those in Architecture and City Planning, I am told that the program of studies during the first year is identical and that during the second year, too, practically uniform curricula are followed. Only after the second year do the fields branch out and does specialization become intense. Since all the sciences are closely interrelated, these first two years, spent in the study of theory — not the theory underlying any particular engine or machine but the theory and the fundamentals of science itself — these years make for adaptability. And it is in the adaptability of the older trained scientists of America that the country is finding one of its greatest sources of wartime strength.

One of the campaigns in which the War Manpower Commission is at present engaged, in areas of labor shortage, is the encouragement (*Continued on page 262*)

# Not Work, Production

## *After War Ends, Motives and Regulations Must Be Examined and New Definitions Established*

BY B. EDWIN HUTCHINSON

ALUMNI DAY BANQUET ADDRESS

*Speaking at first principally to the Class of 1943, who had formally become members of the Alumni Association on the afternoon of January 30, Mr. Hutchinson explained to them the relationship between the Institute and its Alumni. After outlining how graduates can contribute in other than monetary ways to the advancement of the institution, he discussed generally various economic issues bearing directly on academic activities. That portion of his address is basis of the article which follows. — Editor.*

WHERE are substantial donations and bequests to the Institute to come from in the future? It is going to take pretty self-sacrificing Alumni, unless they live to the ripe old age of Methuselah, to save enough money to permit them to compete with the generosity of their forebears. But that is a problem with which the coming generations will have to struggle. More than the progress of this institution will suffer if the rewards for creative and productive ability are permanently circumscribed. Make no mistake, if the principle of limitation on income is once accepted, the amount will become progressively less. The pity is that the chief burden will not fall upon the men who have the ability to earn an income of any prescribed amount. Such men will soon learn to get along quite handily. The real hardship will fall upon the great masses of men who heretofore have benefited greatly by the progress occurring under the leadership of those who have made this country what it is.

Let us look at the record of this country's accomplishments. By a quick transition, we have passed now from a nation which had achieved the highest standard of living the world has ever known, to a nation forging for the defense of freedom the greatest weapons the world has ever seen. This was accomplished by a breed of men who put the emphasis on what they could produce, on the value of their service to their fellow men as it had been measured in times of peace in the free markets of this great country. Their concern has been with what they could create, what they could build. Their activities were the expression of their vision and imagination, their inventive genius, and their executive ability. When the day comes, and may it come soon, when we can again beat our swords into plowshares, let us see that the leadership of our nation is in the hands of such men. It is such men who not only had the ability, with resources accumulated by private individuals through thrift, to build the great industry and commerce upon which the progress and prosperity of this country have been based, but had the vision and the generosity to found and expand such public services as the Institute

and myriads of other schools, as well as hospitals, libraries, foundations, and public benefactions without end.

I am not purposely avoiding the seamy side of our past social and economic history. There were abuses, excesses, and worse. There was plenty of room for improvement and refinement in ethics, standards, and practices. But the principle was right. Production of the material goods of life was stimulated beyond anything ever accomplished before, and it was done under conditions of freedom of enterprise, individual initiative, and private property. There was no raking of leaves designed to create an illusion that a man was earning a living. No crops were plowed under and little pigs killed, with representations that by producing less we should have more. The Sherman Antitrust Act and the Clayton Antitrust Act made it illegal for industry to conspire to restrict production for the purpose of raising prices or to agree that prices should be fixed at any level.

One of the errors of those times was that the laws designed to prevent restraints of trade were not enforced more strictly and that the scope of our free markets was

*New Rogers steps as seen through the Bexley Hall gateway*

*M.I.T. Photo*





not extended beyond our own borders. For these and other errors we paid the penalty of recurrent depressions. The proper remedy would have been more effective measures to eliminate frauds and conspiracies against the public interest. Instead we turned more and more to elaborate and confusing statutory regulations which impaired our liberties. The constructive and creative genius of our people has been obstructed and blanketed by commissions, boards, authorities, and other bureaucratic devices without end. What was designed to reform acted more frequently to repress. Do you realize that the decade of the Thirties was the first decade of regression this country ever experienced?

You members of the Class of 1943 may not be thinking much about your future place in commerce, industry, or engineering right now. Few of us are. Our minds are preoccupied with the war—a war to settle questions your fathers' generation thought they had solved for all time. Some people are hopeful we may do better this time. We should. The generation still lives which fought the first World War. That is a great deal more experience with war than most generations have had. Perhaps now that twice in one generation we have fought for freedom in foreign lands we may learn to prize it at home and to guard zealously against any encroachments upon it. I hope so.

Few of you were thinking of war when you started here four years ago. Now most of you are going to war. All of us are working on the war. War and bare subsistence are the prospect until victory is achieved. We are just beginning to realize what it means to fight a modern, total war. A few weeks before Pearl Harbor, Lord Halifax visited Detroit. Some pacifist women pelted him with eggs. One egg, thrown with a precision uncharacteristic of the feminine sex, hit him. A smaller man would have been indignant. Halifax sadly wiped the mess from his coat and remarked, "How wonderful to live in a country where they have eggs to throw!"

It is wonderful that we can be here, communing in relative peace and comfort. The M.I.T. and other similar institutions are entitled to much of the credit for the relatively happy state of affairs prevailing here as compared with the world at large. Technological aptitude serves the purposes of war no less well than those of peace. It is only modern industry, founded on science and technology, which can make war on this enormous modern scale.

Some timid souls question the real advantage to humanity of all the material progress we have made. Science, they feel, may be the progenitor of a crass materialism which, they aver, has brought us to our present predicament. Others are afflicted with a strange myopia which holds scientific progress responsible for what they call "technological unemployment." Fortunately, as time has gone on, the number and significance of people of such predisposition seem to have grown less. The manifold services to humanity of science, and of the technology based upon the discoveries resulting from science, are everywhere in evidence. Through the control and often the virtual elimination of disease, the span of life has been notably increased. Famine in time of peace has been all but banished. The rise accomplished in the material standard of living

of mankind has been nothing short of marvelous. The improvement in the material lot of man since the dawn of the industrial era is incontrovertible, and the credit for this is unquestionably attributable to science and technology.

It is a thrilling record of progress and achievement, but we must admit the record is marred, and now the very permanency of the achievement is challenged, by the appalling deterioration of man's spiritual estate. As an example of organized savagery and barbarism, history offers nothing that compares in scope or exceeds in intensity the performance going on in the world at this time. John Dewey in his book, *A Common Faith*, deals with the distinction between religion and the religious attitude and deplores the fact that an historical association between religion and superstition has had much to do with an equally traditional tension, shall we call it, between a scientific and a religious attitude toward the problems of life on this earth. No one who looks about him can deny the tremendous force and power for good which men's faith, idealism, and religious convictions exercise. The necessity for a better integration of spiritual forces and scientific methodology seems to be indicated if civilization as we know and prize it is to survive. That he profits most who best serves his fellow men has come to be widely recognized as sound business doctrine. It is perfectly consistent with the golden rule. The free-enterprise system, with its recognition of the individual's responsibility for his achievement in life, is foursquare with Christian doctrine of his personal responsibility to God for his conduct on earth. Science and religion have in the past had their quarrels about various items of dogma, and each has had occasion as time went on to modify its position. Historically both are dedicated to the promotion of the dignity and liberty of the individual, while totalitarianism in all its manifestations, wherever and whenever they occur, has been conspicuous for its oppression of individual freedom and its antagonism to Christian religion.

It is interesting that M.I.T. is extending its scientific methodology into the realm of the relations of men with each other, as instanced in its activities related both to industrial management and to labor relations. It seems to me these discreet and more or less tentative developments might advantageously be broadened and intensified. It is not necessary, at least at the outset, to get into the fields of philosophy, ethics, religion, or sociology to find scope for our talents. As one looks about and listens, what is more discouraging than the almost universal lack of any adequate historical background about the most elemental questions? Time and again, particularly in the discussion of social and economic problems, it becomes apparent that many people have about the same point of view on history as that first historian of record, Herodotus, who opened his account of the world with an introduction to the effect that before the days of his youth nothing much of importance had happened. How far would our young scientists and technicians get if they entered their fields with the same naïveté? And yet how much more important than anything else that we study and learn how men may get along with each other in peace and with good will. Perhaps a little dose of concentrated (*Continued on page 268*)

# THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

## Traditions Reaffirmed

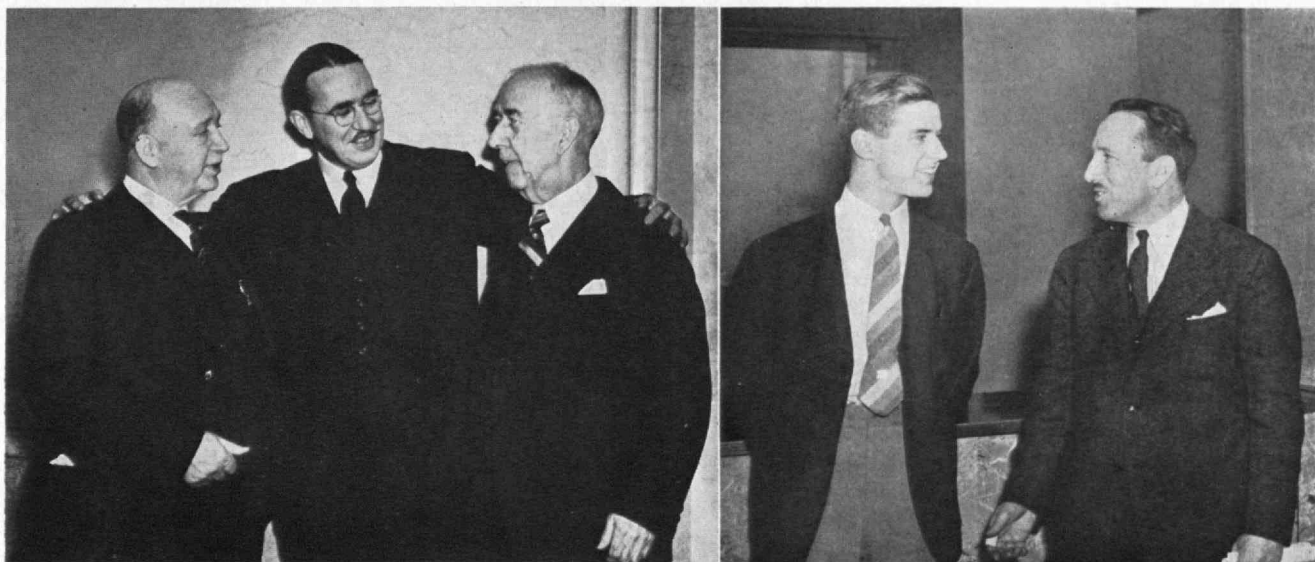
### *Alumni Day Ceremonies Again Evidence Strength of the Bonds between Technology and Its Graduates*

**S**TRENGTH of the many bonds between Alumni and the Institute, emphasized frequently by speakers at Alumni Day and commencement exercises, was well illustrated by attendance at the Alumni Day Banquet on January 30 at the Hotel Statler. In spite of the added loads of wartime, over 800 Alumni were able by their presence to reaffirm the vitality of Technology tradition as Alumni Day has come to express it. To D. Walter Kendall, '24, chairman of Alumni Day 1943, and to Herbert R. Stewart, '24, chairman of the banquet committee, many congratulations were offered on the effectiveness with which the various groups concerned had done their work in arranging the programs and on the satisfying way in which the day summed up Technology spirit. To Alumni Day, with these chairmen and with Francis A. Barrett, President of the Alumni Association, presiding at the dinner, there was a distinctly 1924 tinge. It became a 1907 motif on commencement day, when Clarence D. Howe, minister of munitions and supply for the Dominion of Canada, delivered the commencement address, with five of his classmates participating officially in the program. The baccalaureate Sunday intervening saw Paul V. McNutt,

chairman of the War Manpower Commission of the United States, give the baccalaureate address in Symphony Hall, paying tribute to the importance of the work of such institutions as Technology in time of the nation's need. Mr. McNutt's address, Mr. Howe's, President Compton's valedictory to the Class of 1943, and the Alumni Banquet address of B. Edwin Hutchinson, '09, former President of the Alumni Association, are published elsewhere in this issue of The Review.

### *. . . Class Day . . .*

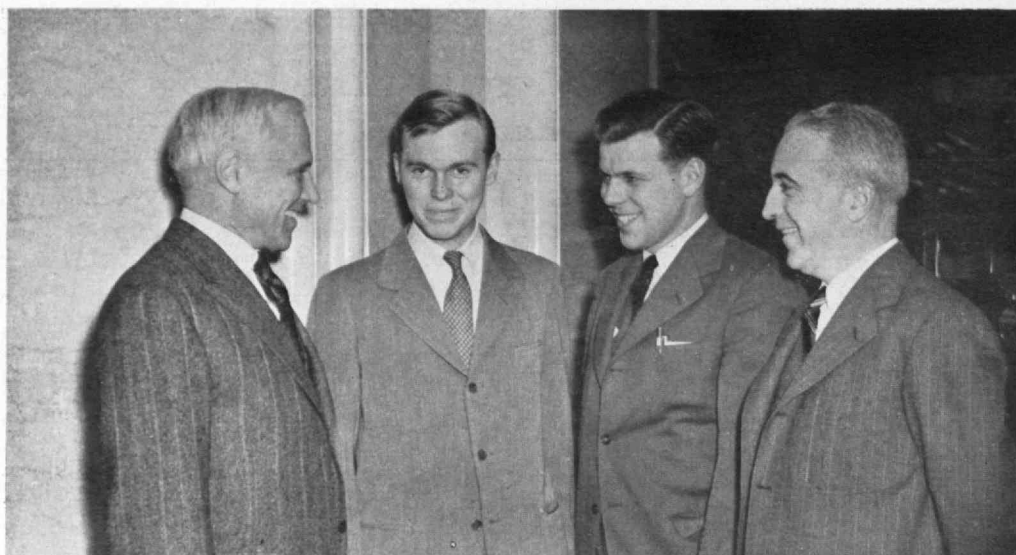
The Class of 1943 were inducted into the Alumni Association on January 30 at the Class Day exercises, for which Institute people returned to the site of the Tech on Boylston Street, the ceremonies being held in New England Mutual Hall at the corner of Clarendon and Boylston streets in Boston. Highlights of alumni interest in the proceedings, in addition to the induction of the newest Alumni, were the addresses of speakers for the 50-year and the 25-year classes; presentation of the 1943 class banner by President Barrett of the Alumni Association; presentation of the class gift to the Institute — a contribution to the Alumni Fund — by S. Richard Childerhose, President of the Class of 1943; acceptance of the gift by President Compton for the Institute; and presentation to Technology of a portrait of Horace S. Ford, Treasurer of the Institute, by the Class of 1892,



M.I.T. Photos

Before the start of Class Day exercises on Alumni Day, Kenneth Reid, '18, left center, 25-year Class speaker, forgathers with Charles E. Locke, '96, Professor of Mining Engineering and Ore Dressing, Emeritus, and Secretary of the Alumni Association, left, and Charles M. Spofford, '93, Hayward Professor of Civil Engineering, Emeritus, 50-year Class speaker. To the right, John D. Mitsch, '20, Associate Professor of Structural Engineering, chairman of the Alumni Association Class Day committee, chats with John W. McDonough, Jr., '43, chairman of the senior Class Day committee.





*President Compton with Robert B. Rumsey, '43, chairman of Senior Week; S. Richard Childerhose, President of the Class of 1943; and Francis A. Barrett, '24, President of the Alumni Association*

*M.I.T. Photo*

the presentation being made by Charles F. Park, Professor of Mechanism, Emeritus, and Secretary of the Class.

The Class of 1893, celebrating its 50th anniversary this year, was represented at Class Day by Charles M. Spofford, Hayward Professor of Civil Engineering, Emeritus. Sketching the contrasts between the Technology of his undergraduate days and that of the present, Professor Spofford said in part:

In that far-off year of 1889 when we came as freshmen with hearts "young and gay," in the words of the recent popular book, conditions were quite different from those today. There was no New Deal; one did not feel that it was his right to be supported by the state, and accordingly exerted himself so as to try to be self-supporting not only in youth but also in old age. There were no radios, automobiles, or airplanes; golf was practically unknown; gasoline was used for cleaning only, and oil for lighting; in consequence, there were neither the gasoline nor oil shortages which form such important subjects of conversation today. Telephones were few, and a house lighted by electricity was rare. Highways were elementary as compared with those of today, although while we were students the Institute offered for the first time a course in highway engineering, partially financed by bicycle companies.

Citing his Class as having established the Institute Committee, Professor Spofford told of the presentation of a dormitory — Bemis Hall, named for A. Farwell Bemis, a leader in the undertaking — to the Institute to signalize the 30th anniversary of the Class. He referred to 1893 as "about an average Class" and declared it fortunate in "having had the opportunity to participate in the remarkable development of engineering and science during the last half century." Concluding, he congratulated the Class of 1943 on their graduation, saying:

You have completed the first severe test of your ability and character, since none will deny that to pass successfully through the vigorous course of training at Technology is a task which requires both brain and brawn, hard work and earnest application. In the words of Euripides: "Toil . . . is the sire of fame." Insight, understanding, and imagination, however, are also needed in order to attain full success. . . . Most of you have already been or soon will be called into military serv-

ice in this war for human freedom. The country needs more than ever the services of youths like you who have received a training which fits you to master the principles and practices of a war which is predominantly technical. We older people who are unable to engage in active battle and are serving our country by using our experience and ability in designing and supervising war projects back of the line, owe you our everlasting gratitude.

Speaking for the 25-year Class of 1918, Kenneth Reid, editor of *Pencil Points*, commented upon the analogy between the position of his Class and that of the Class of 1943, in that each was met by war before it could fairly finish its four years at the Institute. Reviewing the turbulent 25 years since his graduation, Mr. Reid considered that its several divisions — war, depression, boom, depression, recovery, and war again — "are but phases of a single, vast, revolutionary process . . . part of the growing pains of humanity during which the human race has been emerging — skeptically and in some degree unwillingly — from the history-long era of scarcity into the new technological era of abundance." Turning to the future, Mr. Reid continued:

We can't very well imagine letting the war come to an end suddenly with no plans at all for effecting the great transition to peace. . . . We shall have to have . . . a plan of reorganization to get people gradually back to peacetime activities, or we shall risk a greater catastrophe than the war itself.

The plans will have to be broad enough and flexible enough to take care of all interests involved, both public and private. . . . I believe that we can and must plan to achieve a condition of full employment for all employables. I believe that every young man or older man who has gone or will go to the fighting fronts deserves to find a full and fair opportunity to work when he returns. . . .

I believe that one of the principal means of providing full employment after the war will be found in the rehabilitation of our cities. Our American cities, fortunately, have not been bombed. That they will suffer from direct destruction seems unlikely. Yet they have been over a long period suffering from the slow destruction of blight due to unplanned or imperfectly planned growth. There are slums in all of them, representing lost values. These values can be restored or replaced by the application of proper replanning measures. City planners, architects, and other technicians know how it can be done.

*Mrs. Compton becomes an honorary member of the Alumni Association at the banquet on the evening of Alumni Day, receiving a bouquet of roses from President Barrett.*



*M.I.T. Photo*

They will have to win the support and intelligent backing of the public in each community so that it will be done. The economists and real estate interests are even now coming into some general agreement as to the practicability of the process of urban rehabilitation. It will take a generation, or possibly two, to accomplish the transformation. When it is finally effected, our cities will be truly civilized places in which to live and work. And doing the job will employ millions in a great variety of occupations — working for the private developer as well as for public authority of one kind or another.

The future promises plenty of work for young technologists, Mr. Reid declared, urging the members of 1943 to hold fast to the Technology tradition of logical thinking in the pursuit of truth. Thus, he held, they would be assured of meeting well the many new and unprecedented problems to be foreseen in time to come.

### *. . . Stein on the Table . . .*

It was "Yes, we have no bannanners" at the Hotel Statler on the evening of Alumni Day, for Boston fire regulations forbade the colorful display of class banners which had been a feature of Alumni Banquets in years past. The evening meeting, however, more than made up in other ways for the absence of the customary silks.

The steins — designed by Henry B. Kane, '24 — were on the table, and plenty of good songs were ringing clear, with Orville B. Denison, '11, leading the singing and George Wheeler as soloist. The senior Class of 1943, their commencement only a day or so distant, were present in full strength as guests of the Committee of Alumni Hosts, and their President, S. Richard Childerhose of Wilbraham, was there to speak for them. Last year's ebullience as provided by 1937 was this year injected into the ceremonies by 1938, but it was a controlled ebullience and nobody minded. The underlying mood of the evening was serious, as should be expected in days like these; but the spirit was that of comradeship and celebration.

That mood and spirit especially marked a part of the program new this year — brief messages of greeting and Godspeed addressed particularly to the men of 1943 by fellow Alumni in the high command of the Army and

Navy. Brigadier General Alden H. Waitt, '14, of the Chemical Warfare Service; Rear Admiral Ralph Whitman, '01, of the Civil Engineer Corps, Headquarters Third Naval District; and Rear Admiral Julius A. Furer, '05, Federal co-ordinator of research and development for the Navy, Office of the Secretary of the Navy, had found it possible to be present at the banquet, and so delivered their greetings in person.

By letter, cable, and telegram other M.I.T. men ranking high in the armed forces of the United States and Canada sent a good word as well. These included Brigadier General Stuart C. Godfrey, '07, air engineer, Army Air Forces; Rear Admiral Emory S. Land, '07, chairman, United States Maritime Commission; Rear Admiral Alexander H. Van Keuren, '07, director, Naval Research Laboratory, Anacostia Station, D. C.; Rear Admiral Herbert S. Howard, '09, Bureau of Ships; Brigadier General Lawrence B. Weeks, '11, commandant, Coast Artillery School, Fort Monroe, Va.; Major General James V. Young, '13, Canadian Department of National Defence; Rear Admiral Ernest M. Pace, Jr., '17, Bureau of Aeronautics; Brigadier General Forrest E. Williford, '17, commanding, Antiaircraft Replacement Training Center, Fort Eustis, Va.; Rear Admiral Edward L. Cochrane, '20, Bureau of Ships; Brigadier General Lyman P. Whitten, '20, Army Air Forces; Major General Richard Donovan, '21, commanding, Eighth Service Command, Services of Supply, Dallas, Texas; Brigadier General Alfred B. Quinton, Jr., '21, Detroit Ordnance District; Rear Admiral Howard L. Vickery, '21, vice-chairman, United States Maritime Commission; Major General Wilhelm D. Styer, '22, chief of staff, Services of Supply; Brigadier General John K. Christmas, '23, acting deputy chief of ordnance, Tank-Automotive Center, Detroit, Mich.; Brigadier General Russell E. Randall, '23, commanding, XXVI Fighter Command; Brigadier General Stephen G. Henry, '24, commandant, Armored Force School, Fort Knox, Ky.; Brigadier General Gordon M. Wells, '24, Ordnance Department; Brigadier General Wilmot A. Danielson, '26, Quartermaster Corps; Brigadier General Charles E. Loucks, '31, Chemical Warfare Service,





M.I.T. Photos

President Barrett calls the Alumni Banquet gathering to order. Greetings are presented by Brigadier General Alden H. Waitt, '14, Rear Admiral Ralph Whitman, '01 and Rear Admiral Julius A. Furer, '05.

Rocky Mountain Arsenal; Brigadier General William C. Kabrich, '33, Chemical Warfare Service, Edgewood Arsenal.

### . . . Mrs. Compton Accepts . . .

Different in kind but not in degree was another expression of friendliness in the proceedings, when Charles E. Locke, '96, Secretary of the Alumni Association, escorted Mrs. Karl T. Compton to the speakers' table, where, to the accompaniment of applause and cheering, she accepted from President Barrett a sheaf of red roses. Thus was symbolized her induction into honorary membership in the Alumni Association.

### . . . General Doolittle Presides? . . .

The Class of 1924 presented an emergency matter to the general meeting rather than through regular channels when Henry B. Kane, Director of the Alumni Fund, speaking ostensibly on behalf of his classmates, pointed out that the President of the M.I.T. Association of Japan is now serving his second term in this office. Arguing that it is against all democratic principles for this situation to continue longer, Mr. Kane urged the Alumni Association to appoint a new president, saying:

I therefore submit for your consideration the name of such a man. A member of the Class of 1924, we believe it would be impossible to find a more worthy candidate. I can't say that he is a man with both feet on the ground — in fact, just the reverse. He is well known to our Tokyo Alumni, as he paid them a flying visit quite recently, and although he was not exactly welcomed with open arms, he did leave calling cards. I refer, of course, to that famous world-traveler, the man whom 1924 is backing for President of the Tokyo Club — Jimmy Doolittle.

### . . . The Road Ahead . . .

What the future may hold for science and for society, how it may be expected to affect the affairs of the Institute, and what action can be reckoned on to influence

it rightly, were subject matter for the addresses of the principal speakers of the evening, B. Edwin Hutchinson, '09, former President of the Alumni Association, and President Karl T. Compton. Dr. Compton's annual résumé of Institute affairs, which this year paid especial attention to problems later to be encountered, was greeted by the intense interest which has always marked alumni reception of it. Of particular note, among the salient portions of his address which follow, are observations on the questions which readjustment to peacetime activities will bring before institutions of higher learning such as Technology. Dr. Compton said in part:

I want to pay tribute to two groups who deserve our special gratitude and admiration. The first group is the staff of the Institute, who by their loyalty, energy, and ability are enabling the institution to carry on a sound and effective educational program under circumstances which are extraordinarily taxing and confusing. A large number of this staff are on whole or partial leave of absence from teaching duties and are enrolled in the armed services, in the war agencies of research and development, or in industrial production. The variety of their services is large; the importance of their contributions is even larger. The rest of the staff are carrying extraordinarily heavy loads of teaching in connection with our regular program, plus the numerous special training programs which are being carried on for the War or Navy Department or for the United States Office of Education.

In the work of the staff to help win the war, each member is specializing in a job which is urgently needed and which he can do well, and we can be proud of the cumulative results. I speak of this feelingly because my war duties during the past two years have diverted me to a large extent from the affairs of the Institute, and it is a source of great gratification to me that our internal organization, through the efficiency of the administrative officers and the co-operative loyalty of the staff, has enabled our program to go ahead smoothly.

The second and much larger group to which I would pay especial tribute are the many M.I.T. Alumni who are now serving their country as members of the armed forces. As of January 21, 3,702 Alumni were in service: 2,552 in the Army, 1,095 in the Navy, 28 in the Marines, and 27 in the Coast Guard. This number will be swelled by several hundred more as many of the members of the graduating class and some of

our undergraduates are inducted shortly after February 1. It was to me startling to realize that one-tenth of all the living Alumni of this institution, of all ages, are now in uniform. This is particularly significant when we remember that an enormous number of our Alumni are also in civilian positions which are essential to the war effort — positions in engineering design, in industrial production, and in research and development of instruments and materials of warfare. . . .

When I think of the courage of these men in uniform and the service which they are rendering, and when I think at the same time of the absolutely essential supplementary service which is being rendered by our Alumni in civilian capacities in work of great variety in the support of our country in this crisis, I confess to a feeling of enormous pride in the privilege of serving this institution. I know this is shared by all of us.

### . . . Problems . . .

Observing that restrictions of secrecy surrounding practically all of the Institute's research work had given him "the disposition of a clam," Dr. Compton went on to survey the effect on Institute operations of the selective service program and the Army and Navy training programs. Reduction of enrollment from about 2,900 to about 1,600 civilian students by the end of this academic year in June is, he said, to be foreseen. In addition to the 1,600 civilians, the Institute can accommodate about 2,000 of the Army and Navy students whom the services are to reassign to educational institutions under present plans. "If we were asked to do more than this," Dr. Compton said, "we could do so only by acquiring new housing facilities, the possibilities for which appear to be very limited." Pointing out that there are a number of special technological fields in which the Institute can advantageously co-operate with the Army or Navy, Dr. Compton said:

We must be careful not to permit our facilities to be completely absorbed by students in only one or two special



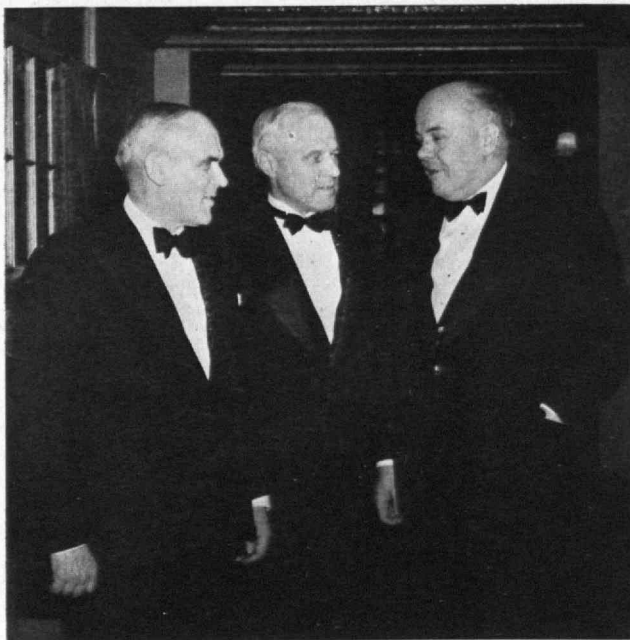
Paul W. Cloud

*The portrait of Horace S. Ford, Treasurer of M.I.T., painted by Harold Brett, which was presented to the Institute by the Class of 1892 at Class Day exercises*

branches. If we were to do that, we could fill our dormitories but we could not advantageously utilize the varied capacities of our staff and laboratories. The ideal situation for us would be one in which we would be called upon to handle a variety of groups in the various engineering and scientific fields — groups of perhaps from 50 to 500 in any one category. In this manner, our facilities for education and for housing could both be used to maximum advantage. We hope that we may be permitted to work out plans of co-operation along these lines with the Army and Navy. We should be very well satisfied with our contribution in the field of education and training if we could maintain our total enrollment of civilian, Army, and Navy students at about our normal figure of 3,000. Handling these in addition to the considerable number and variety of war research projects would pretty well tax the capacity of our facilities. . . .

Describing the recent adoption by the Institute of a completely accelerated program, which calls for continuous year-round operation of classes, Dr. Compton explained that the program of training for Army students will have to be adjusted to a very flexible schedule in view of the fact that students detailed to school by the Army will generally arrive not at the beginning of semesters but from time to time as may be convenient to the Army. Then turning to the future, the President said:

Looking ahead to the period immediately following the war, we shall face a new set of problems at M.I.T. — problems which in general will be common to all higher educational institutions. For one thing, to change back from the accelerated program of study all round the calendar to the normal four-year academic schedule will be an expensive operation. This additional expense will arise largely from the fact that for a year or so during the return to normal we shall have only three academic classes instead of four, and consequently there will



M.I.T. Photo

*Clarence D. Howe, '07, commencement speaker, President Compton, and B. Edwin Hutchinson, '09, Alumni Banquet speaker, before the gathering on the evening of Alumni Day*



be a reduced tuition income. We have estimated that it will probably cost M.I.T. about three-quarters of a million dollars to make the transition from the accelerated to the normal program after the war. This will be an exceedingly difficult financial situation to meet.

One thing which will make the project the more difficult is the fact that, even with ordinary student enrollment, we shall probably lose money while we are on the continuous three-term program during the war. This is because student tuitions do not carry the full cost of operating the institution. The balance is carried by income from endowment. Tuition income will, of course, be increased if students are here for three terms instead of two, and this will help to meet the added cost of the third term. But that portion of the income which comes from



Phelps

#### FOR PRESIDENT

... of the Alumni Association of the M.I.T., the National Nominating Committee this year has designated Francis J. Chesterman, '05, of Germantown, Pa., Vice-president for operations of the Bell Telephone Company of Pennsylvania and the Diamond State Telephone Company, with headquarters in Philadelphia. A life member of the Institute Corporation, Mr. Chesterman served the Alumni Association as vice-president in 1929-1931 and is also past president of the M.I.T. Club of Western Pennsylvania. He joined the engineering department of the American Telephone and Telegraph Company in Boston in July, 1905, going thence to the New York Telephone Company in 1907, and to the Bell Telephone Company of Pennsylvania in 1920, where after holding various executive engineering posts he became vice-president for operations in 1941. Mr. Chesterman, who holds the honorary degree of doctor of engineering from the University of Pittsburgh, is a fellow of the American Institute of Electrical Engineers and a member of the Army Ordnance Association and the Franklin Institute. His directorships include the Bell Telephone Company of Pennsylvania, the Diamond State Telephone Company, the Fidelity-Philadelphia Trust Company, the Pennsylvania State Chamber of Commerce, and the Chamber of Commerce and Board of Trade of Philadelphia. He is a member of the Philadelphia Council, Boy Scouts of America, and of the Public Charities Association of Pennsylvania.

endowment will not be increased, so that the third term may involve a deficit. There is some question, furthermore, as to how much tuition or equivalent payment will be received from Army or Navy students sent to us under contract, in view of the fact that our present tuition at M.I.T. is higher than that of any other college, university, or technical school in the country. In dealing contractually with the Army and Navy, this competitive feature may operate to our disadvantage.

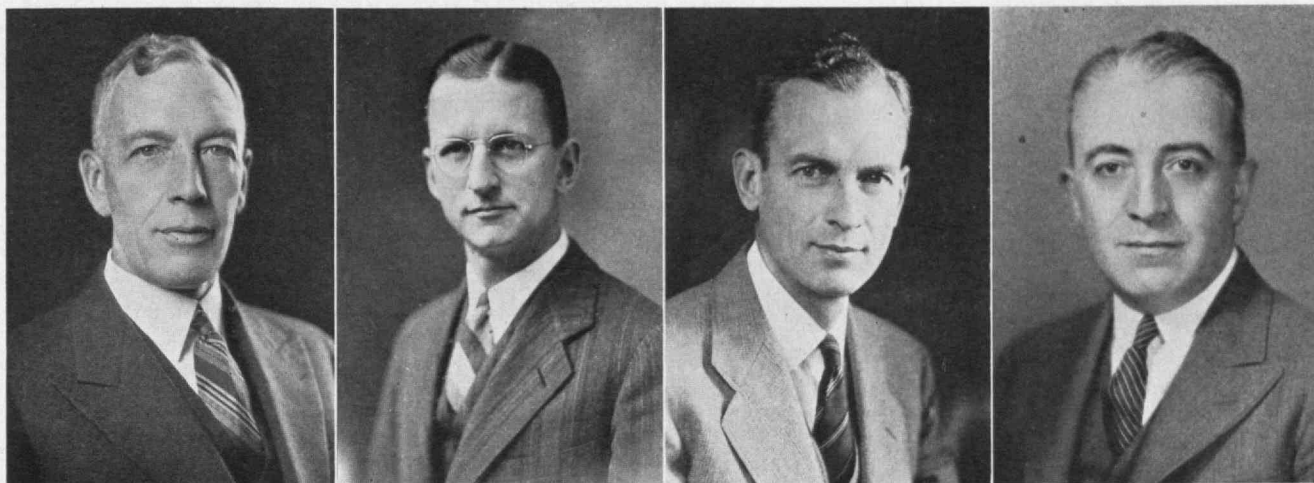
Another problem which will require careful planning and administration at the end of the war is concerned with the probable postwar enrollment of students. At the end of the last War, the enrollment went to an excessively high figure, unfortunately far beyond the capacity of our classrooms, laboratories, and staff to handle efficiently. My colleagues who were here then unanimously report that at that time we went through some three or four years of educational nightmare.

The same situation may have to be faced at the end of this war, when we shall have coming to us not only the normal annual crop of graduates of secondary schools but also many young men whose educational programs were cut short or postponed completely on account of war service. We shall have to handle this situation skillfully in order to prevent a crowding of our facilities and an unbalanced distribution of our staff which will interfere with the standards of our educational work, not only at that time but for many years to come. I mention this latter point because an administrative study of our staff distribution in the various grades shows very clearly that we are still suffering from the unbalanced recruitment of staff which took place to meet the overcrowding in the years just following the last War.

Still on the side of future difficulties, I must refer to the financial outlook. This institution has been blessed by the generosity of a few wise and noble individuals. Their gifts have been supplemented by a very large number of smaller gifts from persons who have been equally wise, noble, and altruistic in their point of view but unable financially to contribute large sums.

I think everyone agrees that under the present and prospective schedules of taxes, governmental regulations on salaries, and other handicaps, it is very unlikely and perhaps totally impossible that individuals will in the future be able to build up the large fortunes which had been possible in the days of rugged individualism and free opportunity of the past few generations. At least such opportunities will not come unless there is a very marked change in the current thinking, feeling, and trends in the country. Consequently, if we are to remain a top-grade privately controlled institution, our only hope of adequate financial support in the future must be centered in two groups: first, those still surviving friends who have in the past been able to accumulate great wealth and who see in the work of the Institute an inspiring opportunity for the permanent use of their wealth for the public benefit; second, the great number of citizens and Alumni of much more modest means who may for similar ideals be induced to contribute to education in smaller sums.

After the war I can see the possibility of a severe financial problem in this institution, the meeting of which may seriously curtail its future strength if the requirements have to be met out of currently available funds. On the other hand, I can see ahead the opportunities for a strength and value of this institution as a national asset far beyond anything which has ever before been achieved or perhaps even considered possible. To achieve this we must find the funds not only to pass through the readjustments back to normal at the end of the war but also to capitalize on the great opportunities which will then exist for strengthening our staff, for the effective utilization of some of the fine new laboratories, and for the development of some of the important new techniques which have become centered here as a result of the current war effort.



Purdy

## TO THE CORPORATION

... for term membership these four Alumni have been this year named by the National Nominating Committee. From left to right they are Irving W. Wilson, '11, Vice-president in charge of operations, Aluminum Company of America, Pittsburgh, who will complete the term of the late Alfred H. Schoellkopf, '15; Walter J. Beadle, '17, assistant treasurer, E. I. du Pont de Nemours and Company, Wilmington, Del.; Donald F. Carpenter, '22, Vice-president and director of manufacture, Remington Arms Company, Inc., Bridgeport, Conn.; and Francis A. Barrett, '24, retiring President of the Alumni Association, head of the publicity department, New England Telephone and Telegraph Company, Boston.

On the favorable side for the future, in addition to the potential opportunities which I have just mentioned, are several matters in which I feel that our situation is encouraging. For one thing, we have been carrying through during the past 10 years, and quite largely as a result of the efforts of our former Vice-president, Vannevar Bush, '16, a systematic restudy and formulation of matters of administrative policy in every aspect of the institution's activities. As a result of these studies, we are able now or at any time in the near future to carry on our operations with a confidence, skill, and precision which would have been impossible 10 or 12 years ago. Simultaneously during this period there has been proceeding a continuing intensive study of some of the most fundamental aspects of our educational program. These studies have resulted in revisions of our curricula and in improvements in our methods of instruction. Many of these changes have recently been put into effect and a few of them are ready for use just as soon as conditions are normal. For these reasons I feel that the institution, internally, is in an extraordinarily favorable position for moving ahead into peacetime activities.

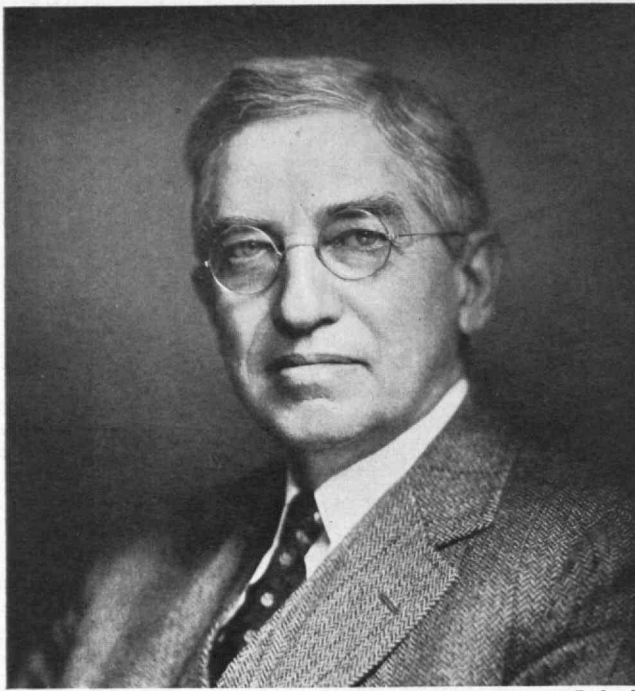
Another favorable situation for the near future and the postwar period results from the extent to which the war activities in research, development, industrial production, and military use have brought members of our staff into mutual contact with men in industries and in the armed services. These contacts have resulted in greatly increased mutual respect and understanding between the personnel in these groups. In saying this I am not speaking hypothetically but as a result of the close observation of this trend in some of its very significant aspects. The industrialist who a few years ago was inclined to view the academic scientist or engineer as an impractical sort of person is now the first to admit that these men have proved their ability to make practical developments of great ingenuity and originality. At the same time, the academic men who have in the past been somewhat inclined to consider their industrialist brethren as bound by traditions and not sufficiently open-minded to accept new ideas with enthusiasm have come to appreciate much more clearly the procedures and attitudes which are necessary to bring an ingenious conception into practical use on a large scale. Because of this mutually increased understanding and respect, the postwar period should see a far more fruitful degree of co-

operation between the research facilities and the staffs of educational institutions and industry than has ever existed before, and this should be beneficial not only to the educational institutions and the industries but especially to the public, who are the ultimate beneficiaries of the activities of both groups.

One of the opportunities which may be favorable in the future and which may assist us in solving some of our financial problems may be found in the patents granted on inventions by members of the staff and administered commercially in such manner as to bring a modest return to support further research and educational activities. Through arrangements made with the Research Corporation in New York for the handling of such patents, we have gained considerable experience during the last eight or ten years. We have found how to handle patents in an educational institution of our type in a manner which is clearly in the public benefit and which cannot endanger the institution from a public relations or a legal point of view. While the war has temporarily interrupted this aspect of our activities and while we cannot point to any one discovery which promises to bring in a very large income, nevertheless the indications at the present time are that the income from this source may be substantial enough to strengthen in a significant way our facilities and opportunities. Perhaps more important than the financial aspect is the fact that the arrangements which have been in force in recent years have been highly acceptable to the members of the staff and have removed sources of worry and irritation which had previously been bothersome.

As we look ahead, I think that one matter of policy will be generally admitted to be advantageous. That is the policy of concentrating our efforts in the most important fields of technology and not, through ambition or overenthusiasm, spreading our resources and activities too thinly over too many fields. If our resources were unlimited, then we might undertake to center here at the Institute the finest program to be found anywhere in the world in every aspect of science, engineering, architecture, and business administration. Obviously this is far more than we can do with limited resources. It becomes important, therefore, to make wise decisions from time to time in regard to the directions in which our efforts and resources will yield the most valuable results, from the point of view of public welfare and the scope of our charter.





PHILLIPS KETCHUM

*Recently elected special term member of the Institute Corporation*

The directions of most advantageous effort may occasionally change, and when they change there may be many regrets. We may, furthermore, make mistakes from time to time in our judgment as to the relative values and opportunities in various fields, new and old. The principle, nevertheless, I believe to be important. We should at this institution have no program which is not of top-notch quality and effectiveness. We should undertake work in as many technological fields as we can handle, subject to this criterion of high quality. If in the future our resources should become too limited to meet the opportunities which we should like to grasp, then I believe that we have only two alternatives: The one is to find the additional resources necessary to utilize these opportunities, and the other is to perform whatever amputations may be necessary to reduce our program to the dimensions which can be carried on successfully at the level of standards for which Technology has become notable.

In conclusion, let me describe briefly an idea which occurred to me recently as I was thinking about the way in which the war is interfering with the educational programs of those of our students who are being called away to the armed services from the middle of their academic careers. They are doing this at a substantial sacrifice in order to serve their country, and the country is demanding this sacrifice of them. What will be their situation when the war comes to an end?

At that time there may be ten million or more members of the armed forces who will be demobilized as quickly as feasible and who will wish to get back to their ordinary civilian pursuits which the war had interrupted. At that time, however, the country will not be able immediately to absorb these ten million men and women, for time will be required to transform our industrial plants and our business organizations from wartime to peacetime operation. I believe that it is inevitable, therefore, and entirely proper, that the government should assist in this transition, both for the individuals concerned and for the business organizations involved, in order to taper off from wartime activities and taper up into normal pursuits.

I for one, and I believe that most of you, believe firmly in the general principle that the less control which government exerts over business and over private lives, and the fewer gov-

ernmental subsidies or bounties there are, the better for all concerned. But I think that we also cannot but admit that the government is going to have to do some things in a very large way during this immediate postwar transition period unless there is to be an enormous amount of suffering and a period of unemployment and depression which will make that of the early 1930's appear like good times. I am assuming, therefore, that the government will sponsor some type of program of public works, of housing construction, and of incentives and assistance to industry in building up its normal peacetime activities.

What I should like to suggest is that a part of this tapering program should include a provision whereby those college men whose careers were interrupted by call to military service should have the opportunity to apply for governmental scholarship aid within a limited period after the end of the war in order to enable them to return to their educational institutions to complete their training. I believe that such a move would be a wise one from the standpoint of the country at large in that it would be assisting to build up a highly trained and educated group of young men to fill the gap which will otherwise have been left as a result of the interruptions of the war.

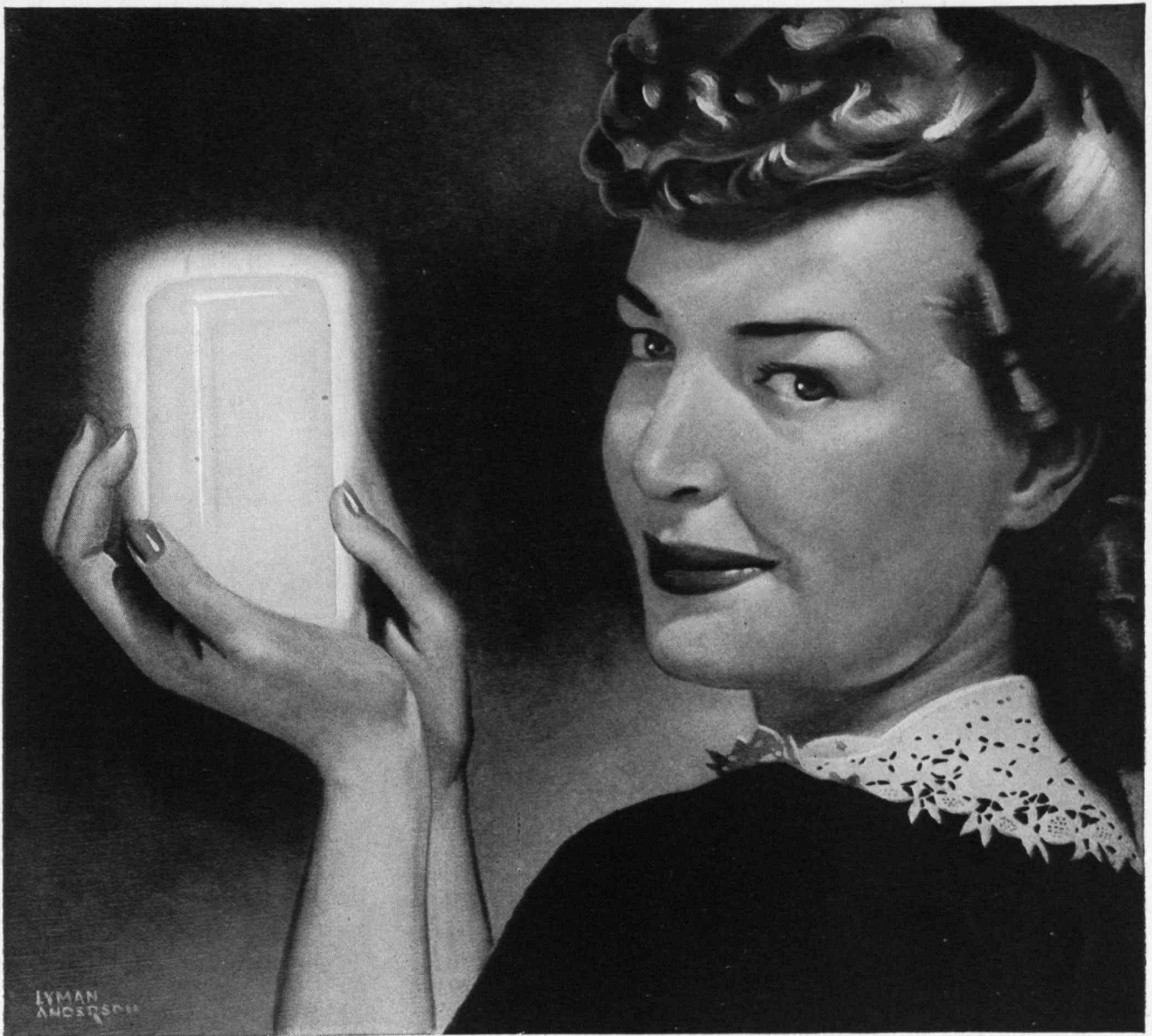
The importance of such a group to the country cannot be overestimated. We see right now in our crisis that even after years of peace we have a dearth of man power of the training and qualifications required in this emergency. Our country could do nothing which would bring greater returns in increasing its potential strength and raising its cultural level than to take steps after the war to facilitate the filling of these educational gaps. Many men who would have gone through with a liberal arts course have been diverted to the more highly practical technological courses at an elementary level, and unless they have an opportunity later to pursue their cultural courses the country will be the loser. Similarly, many young men who would have been going through their courses of undergraduate and postgraduate education in the sciences and in engineering have been diverted from these courses into the armed services or have been able to complete only the elementary portions of their training. The loss of these men will be a permanent loss to the productive capacity of the country, and they will be urgently needed in the succeeding years to man our industries, laboratories, and educational institutions. Therefore, as part of any program of useful work or of assisting industry and labor to return to normal, I should suggest the inclusion of a program in the field of education which will permit those whose education has been cut short by war service to have the opportunity to complete that education.

History has shown that great educational institutions are among the most permanent of human institutions, outlasting dynasties, governments, and social epochs. Probably they are second only to the church in enduring quality. So I do not doubt that Technology will be a potent influence in the life of America long after you and I and our problems have passed on. But the future character and power of the Institute will be profoundly influenced by what we can do for it during the next critical decade. I ask, with confidence, for your continuing and earnest interest and help in our great altruistic enterprise.

### *Corporation Election*

**PHILLIPS KETCHUM**, prominent corporation lawyer of Boston, was elected a special term member of the Institute's Corporation at its meeting on February 2. He has been a member of the firm of Herrick, Smith, Donald, Farley and Ketchum since 1917.

Born in Portland, Maine, in 1884, the son of Charles J. and Rebekah Kimball Ketchum, Mr. Ketchum prepared at Noble and Greenough's (*Continued on page 276*)



## The shape of things to come is no secret

THE humming noise you hear is industry at war. When peace comes, that sound need scarcely change its pitch. For in business offices, on assembly lines, in civilian defense centers, and at home, American women are already wishing up new things for industry to make.

They want us to help them keep house, to supply new equipment for it on a scale that makes past performances seem like only practice. Home laundries that "do" everything from tablecloths to negligees. Ranges complete with pressure cookers and unbreakable transparent ovens. Refrigerators with compartments that hold each food, from frozen meats to lettuce, at the ideal temperature and humidity.

Whatever makes housekeeping easier and more economical, women will be waiting for industry to supply. The problem is not what to make, but *how*. Which material, new or old, will contribute the most in beauty, strength, economy, to each part of the new design? How shall it be used, fabricated, finished? Where can it most effectively save weight, cost, time?

For impartial answers to questions about metals industry can turn to Revere. For just as industry in the future will not be restricted to the traditional materials, neither will Revere. In addition to broadening still further the uses for copper and its alloys since the start of the war, Revere has developed facilities for the manufac-

ture of the light metals, and is pioneering in the production of entirely new alloys with important properties that can cut manufacturing costs for many industries.

Today the copper industry is working all-out to win the war. No copper is available for anything else. But post-war planners with specific problems in metals are referred directly to the Revere Executive Offices in New York.

**REVERE**

**COPPER AND BRASS INCORPORATED**

*Founded by Paul Revere in 1801*

Executive Offices: 230 Park Ave., New York



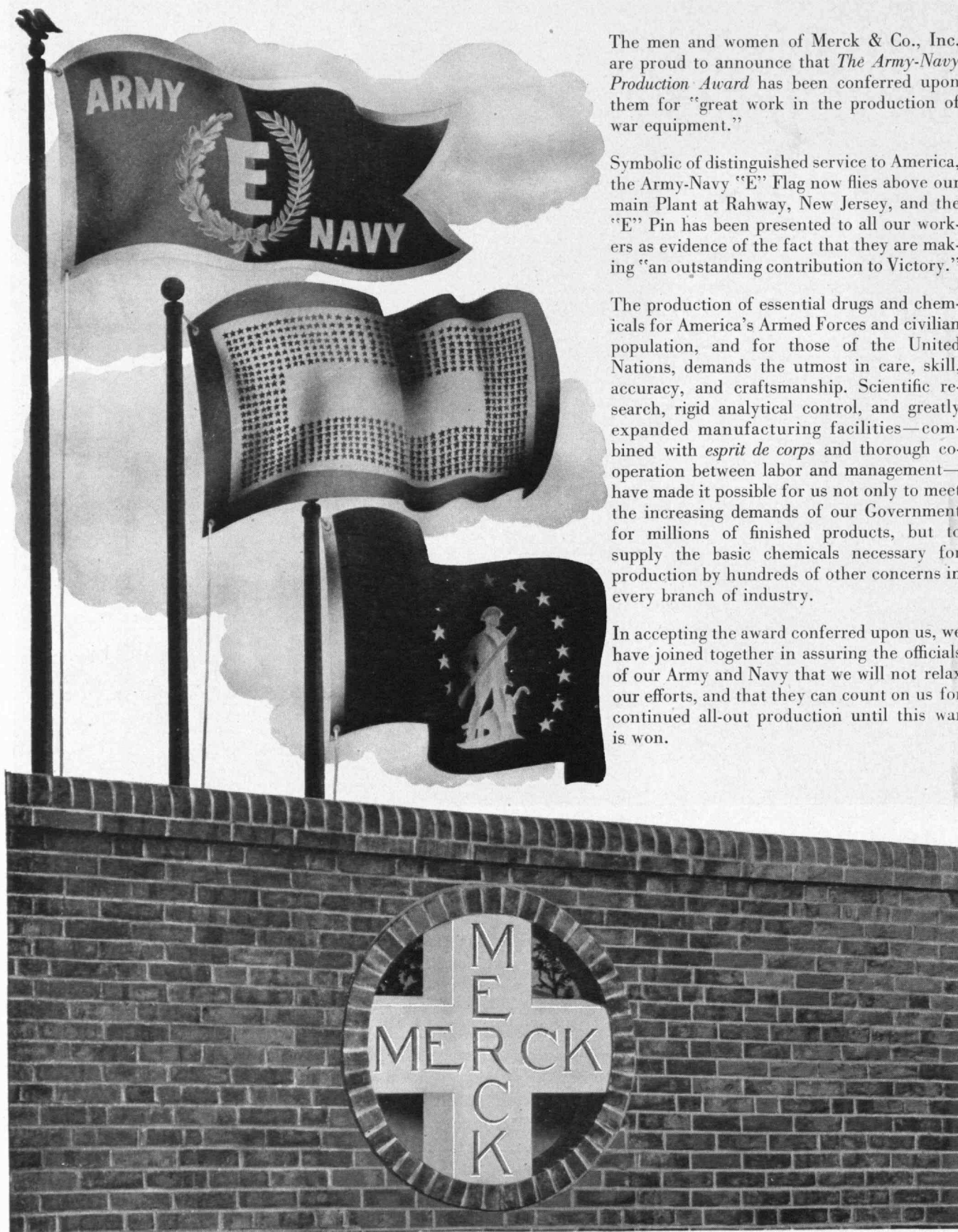
## "AN OUTSTANDING CONTRIBUTION TO VICTORY"

The men and women of Merck & Co., Inc. are proud to announce that *The Army-Navy Production Award* has been conferred upon them for "great work in the production of war equipment."

Symbolic of distinguished service to America, the Army-Navy "E" Flag now flies above our main Plant at Rahway, New Jersey, and the "E" Pin has been presented to all our workers as evidence of the fact that they are making "an outstanding contribution to Victory."

The production of essential drugs and chemicals for America's Armed Forces and civilian population, and for those of the United Nations, demands the utmost in care, skill, accuracy, and craftsmanship. Scientific research, rigid analytical control, and greatly expanded manufacturing facilities—combined with *esprit de corps* and thorough cooperation between labor and management—have made it possible for us not only to meet the increasing demands of our Government for millions of finished products, but to supply the basic chemicals necessary for production by hundreds of other concerns in every branch of industry.

In accepting the award conferred upon us, we have joined together in assuring the officials of our Army and Navy that we will not relax our efforts, and that they can count on us for continued all-out production until this war is won.

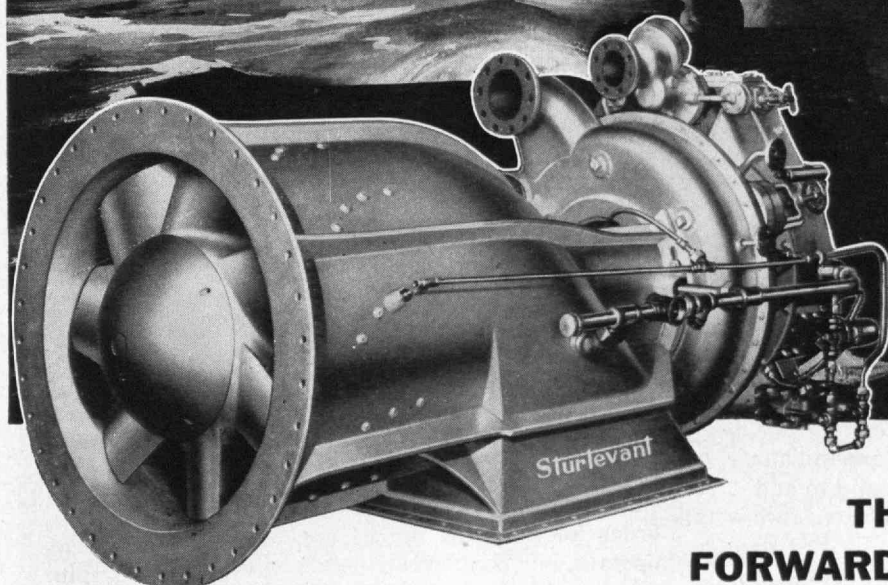


**MERCK & CO., Inc.** *Manufacturing Chemists* **RAHWAY, N. J.**

★ *Fine Chemicals for the Professions and Industry Since 1818* ★

FOR SHIPPING.....IT'S *The Fan of Tomorrow!*

*Today* ..IT'S PUTTING A BIGGER BONE  
IN NAVY TEETH!



**THE GREATEST STEP  
FORWARD IN FAN HISTORY!**

**NEW STURTEVANT  
*Victory AXIFLO Fan*  
FOR NAVY FORCED DRAFT**



**SAVES SPACE, WEIGHT, POWER**

It's the greatest achievement of Sturtevant's 82 years of Fan Research... an Axiflo Fan that hits a new high in fan efficiency, in power savings, and in axial flow fan operating pressures.

TODAY—the *Victory Axiflo Fan* is saving weight, space and power aboard battleships, cruisers—in fact, every type of naval vessel—providing greater fuel and ammunition carrying capacity. The needs of our nation's Navy must be met first, and for the duration the new fan will be restricted to Naval use.

TOMORROW—when intensified competition returns, making every saving an important factor in successful operation, the new Axiflo Fan will be available to the entire marine industry—to bring new economies to heating, ventilating, and mechanical draft. Learn about this remarkable new fan development in Bulletin No. 460. A copy will be gladly sent on request.

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*Puts Air to Work*

**FOUNDER OF THE AIR HANDLING INDUSTRY**



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*We invite a  
forward-looking*  
**MACHINERY MANUFACTURER  
or INVENTOR**  
to plan with us NOW for  
post-war expansion

War work has caused us to greatly increase our productive capacity. So when peace comes, we will have the equipment and trained personnel to manufacture not only our regular line of wrapping machines, but other types of machinery or devices. You may find it profitable to take part in our planning for such post-war expansion.

For 30 years we have been one of the leading makers of packaging machinery. Our machines are used by hundreds of concerns—in the food, drug, candy, tobacco, dairy fields, etc. Many of the advancements in mechanical wrapping now widely used were conceived by our Engineering and Designing Department.

For war, we have *designed and built* large groups of armament machines such as cartridge loaders, cartridge-clip loaders, machines to insert cartridges into cartons, linking machines for machine-gun bullets, etc.

We are now working on ideas to expand our regular line of wrapping machines and to add other lines of machines used by industries we do not now serve.

● You may have ideas for new machinery which need development. We will be glad to discuss them with you, and if mutually satisfactory, will develop them with you.

● You may have a machine or machines which you have been making in your own plant, but which might be improved and made with greater profit in ours.

Final arrangements may result in your coming into our Company—or may be worked out on some other desirable basis.

If you feel that you have something on which we might work together, we suggest that you communicate with us, giving full particulars. We can then arrange for a meeting.

**PACKAGE MACHINERY COMPANY**  
Springfield, Massachusetts

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## ENGINEERS IN WARTIME

(Continued from page 234)

and, at the same time, maintain a scale of profit which is reasonable. The cost plus percentage contract of the last War has been abandoned, often in favor of target-price contracts, which allow a slightly larger profit if the target price is bettered and a smaller profit if it is exceeded. These three objectives of war buying are maximum output, low production costs, and close profit control. All three objectives are sometimes inconsistent with each other and cannot be obtained in every situation, but I think it can be said broadly that swollen profits from war contracts are not the order of the day.

A major problem of war production is found in the rapidly changing needs for weapons and supplies. To provide initial equipment quickly calls for a larger industrial output than is needed to furnish replacements, whatever the scale of battle may be. Thus, new plants must be built and put into full-scale operation for brief periods and then be subject to sharp curtailment of output. As a result of combat experience, new weapons are developed which may require the complete retooling of plants that have barely begun to produce weapons of the older type. Just as nothing is static about war, little is static about war production. Men and women working in war plants, working with all possible patriotic zeal and energy, find it difficult to understand why there must be a layoff for retooling, with consequent lost time in production. All this is a headache to those responsible for war production, but one which is inevitably associated with that work.

In the organizing of a nation for full-out war production, we must remember that the total output depends in part on the creation of new productive capacity and in part on the ability of the civilian population to do without. Hitler put the situation before his people very clearly when he said they must give up butter in order that the army might have guns. Thus we find that in order for our own armies and ships and aircraft to operate, our civilian population must use less gasoline and less rubber. In order that we may feed our fighting forces, civilians must be deprived of certain foodstuffs. In order that adequate materials may be provided for munitions, civilian uses of those materials must be prohibited or limited. To fight a total war without encroaching on the living standards of the civilian population is impossible.

Similarly, the financing of war involves the curtailment of civilian expenditure. Augmented industrial tempo resulting from the war brings to the population increased and more diversified earnings, which must be channeled back to pay for war expenditures, either through heavy taxation or through borrowing. By rigid discipline, a nation should be able to finance anything that it can produce physically. On the other hand, lack of discipline in civilian spending may easily lead to inflation, and inflation is capable of destroying the ability of a nation to achieve its war objective. All countries at war find it necessary to regulate prices, to ration many articles that can usually be bought freely, and to curtail and regulate luxury spending. The prob-

(Continued on page 254)

## PENFLEX WELD

Corrugated Flexible All-Metal Tubing  
for Safety and Service on High Pres-  
sure Lines that **MUST** be Leak-proof

Flexibility combined with safety against all normal hazards; resistance to radial and longitudinal strains under high pressure; jointless, welded, leak-proof construction in lengths as needed—all these make PENFLEX WELD Tubing invaluable in handling volatiles, liquids and gases with penetrative or solvent characteristics.

PENFLEX WELD corrugation serves a two-fold purpose—*gives flexibility and develops high resistance to bursting, crushing, cracking or splitting.*

Also available to maintain the leak-proof service and flexibility of PENFLEX WELD are Solseal and Metseal Couplings. Solseal, for general use, designed for service where temperatures do not exceed 250° F. . . . Metseal, a positive metal-to-metal joint, provides tight joints for higher temperature—no packing used, metal must break or melt before joint will separate.

PENFLEX WELD Corrugated Flexible All-Metal Tubing, Solseal and Metseal Couplings are described in Bulletin 90. Write for it.

Flexible PENFLEX WELD  
Tubing—in sizes  $\frac{1}{32}$ " to 2" I.D.  
... Bronze or Steel Construction.



# PENNSYLVANIA FLEXIBLE METALLIC TUBING CO.

7227 Powers Lane, Philadelphia, Pa.

ESTABLISHED 1902



## ENGINEERS IN WARTIME

(Continued from page 252)

lem comes down to that alternative of Hitler's — guns or butter? Let us realize that civilian controls are a necessary by-product of war and not be impatient with those responsible for the administration of them.

Perhaps the most difficult problem of any country at war is the efficient mobilization of man power. All countries have accepted the view that man power for the armed forces should be chosen by conscription. The difficulty comes in working out a method of assigning men and women to industry, to the farms, to the forests, and to the mines, and doing so fairly and efficiently. I doubt the possibility of evolving a method for such assignment which can be wholly efficient and equitable. Every effort is warranted to bring about the desired result — effective mobilization for war — and each country is developing its own pattern for so doing. The efficient use of man power and woman power will be a problem that will increase in magnitude from now until the end of the war; failure on the part of those in authority to maintain a balance in man power will be an increasing danger to the war effort.

The closest possible co-ordination of the resources and fighting strength of all Allied countries is being maintained, and to this end the United States is giving splendid leadership. Raw materials are pooled on an international basis and, where shortages exist, the materials are distributed equally among all Allied countries.

The requirements for each battle area are determined by central boards, the supplies being sent forward to each area from whatever country can best supply the requirement. To countries fighting for a common cause, international boundary lines mean little. I hope, and believe, that they will continue to be less important in the future than in the past.

Recent news from the combat areas has been encouraging. We have all been thrilled at the meeting in North Africa of two of the commanders in chief of the Allied nations accompanied by their military and naval advisers. We all admire the courage of the two great leaders who held their meeting in a place that was enemy territory only a few weeks ago. If published reports that issued from the meeting do not tell us *when* the war will end, they tell us very definitely *how* it will end.

It seems to me that an unwarranted spirit of optimism is abroad, looking to an early end to the war. The history of the war to date tells of many masterly withdrawals on our side but of few spectacular victories. As President Roosevelt stated recently, "Last year, we stopped them. This year, we intend to advance." Even so, it must be apparent to all that in this mechanical war, long lines of supply present grave problems. Long lines of supply will be inevitable from now on. The great need at the moment is for ships and more ships, both naval and merchant, and for planes and more planes, both fighting and transport. We have built up vast armies, furnished with all the equipment required by modern

(Concluded on page 256)

# POOR & COMPANY

RAILWAY EQUIPMENT

CHICAGO, ILLINOIS

# THE TECHNOLOGY LOAN FUND BOARD

## REPORT FOR THE YEAR 1942

Principal repayments exceeded new loans made, and by December 31 the total of notes paid off had exceeded the total of notes outstanding for the first time in the Fund's history. The data given below summarize the Fund's transactions during 1942 together with the cumulative figures for the past twelve years.

By year-end the Fund had made loans to 2,507 men of whom 1,142, or over 45%, had completely discharged their financial indebtedness. Moreover, many of the 1,142, and others as well, had taken advantage of the provision that "payments may be anticipated," for \$59,886.63 of notes were paid off during 1942 *in advance of maturity*.

Such cooperation is particularly appreciated in these times because it has enabled the Loan Fund Board to continue to bear the cost of insurance protection on all outstanding obligations despite the markedly higher "war risk" premium rates occasioned by men in the military or naval services.

### THE TECHNOLOGY LOAN FUND BOARD

K. T. Compton  
H. S. Ford  
B. A. Thresher  
D. L. Rhind, *Secretary*  
H. E. Lobdell, *Chairman*

Cambridge,  
February 1, 1943

Cumulative Record of the Fund from its establishment in 1930 up to December 31, 1942, and the corresponding figures up to December 31, 1941, together with the net changes during 1942

	<i>At Dec. 31 1941</i>	<i>At Dec. 31 1942</i>	<i>Net Changes during 1942</i>
<b>ITEMS OF OUTGO</b>			
Number of men receiving loans . . . . .	2394	2507	+113
Total amount loaned . . . . .	\$1,685,764.75	\$1,807,788.75	+\$122,024.00
Average per capita loan . . . . .	\$734.87	\$746.05	+\$11.18
<b>ITEMS OF INCOME</b>			
Number of men whose indebtedness has been completely discharged . . . . .	923	1142	+219
Principal repayments <i>in advance</i> . . . . .	\$196,970.27	\$256,856.90	+\$59,886.63
Other principal repayments . . . . .	582,853.95	681,583.57	+ 98,729.62
Total principal repayments . . . . .	\$779,824.22	\$938,440.47	+\$158,616.25
Total principal matured, considering "advance repayments" as matured when paid . . . . .	\$851,350.84	\$998,929.46	+\$147,578.62
<b>Collection ratio, i.e. percentage of total maturities paid . . . . .</b>	<b>91.6%</b>	<b>93.9%</b>	<b>+2.3%</b>
Matured principal in arrears . . . . .	\$69,129.27	\$58,091.64	-\$11,037.63
Actual "written off" accounts . . . . .	2,397.35*	2,397.35*	(no change)
Total maturities unpaid . . . . .	\$71,526.62	\$60,488.99	-\$11,037.63
Interest received . . . . .	\$137,163.53	\$155,699.38	+\$18,535.85
NOTES OUTSTANDING . . . . .	\$903,543.18	\$866,950.93	-\$36,592.25

\* Of seven men, deceased prior to 1938 and not covered by insurance.



A Matter of . . .

## TECHNOLOGY

No easy matter—this job of producing for War. It takes everything, but most of all it takes research—study—understanding—engineering. Diefendorf approaches every job as a specific problem, worthy of perfection.

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*D. W. Diefendorf '30, President*

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INVESTMENT COUNSEL

68 Devonshire St.

Boston, Mass.

## ENGINEERS IN WARTIME

*(Concluded from page 254)*

armies. We have ahead of us the task of building up transportation by sea and by air to meet all the many problems associated with adequate supplies for our fighting men. Our output of ships and airplanes is growing month by month, and growing rapidly. But the destructive power of the enemy submarine is as great as ever and continues to menace our lines of supply. The numbers of enemy submarines are increasing month by month, and each new batch is faster and better armed than the last. Losses of shipping continue at an appalling rate, and though new ship tonnage is now being built at a pace faster than tonnage is being sunk, the margin must be widened quickly and greatly to enable our growing armies abroad to have the needed support.

I therefore urge you, who are now entering on your active war duties, not to think of a quick and easy victory but to settle down to a long, hard struggle. You will not be faced with the frustration of defensive warfare which has been the lot of part of our Canadian Army that has already served abroad for more than three years, but I think you will have ample time to play a great part in this war to preserve civilization. I wish to every one of you a grand war career and a safe return to peacetime pursuits.

## TOWARD THE MOUNTAIN

*(Continued from page 236)*

movements. Undoubtedly many surprises are in store for us—some unpleasant ones, perhaps, and many that we trust will bring satisfaction. I do not know how to predict or describe this region except to say that to traverse it successfully will require courage, sacrifice, and a high degree of intelligence in our actions. These qualities will have to be exhibited by us as individuals as well as by economic and political groups, such as cities, labor unions, farm blocs, industrial companies, regional groups, and the like. The same qualities will be required of our country as a whole in its public opinion and its leadership.

The first great obstacle between us and that glorious high mountain which is our desired goal is the war. We must win the war or we are doomed to struggle on and

*(Continued on page 258)*

# DEECY PRODUCTS COMPANY

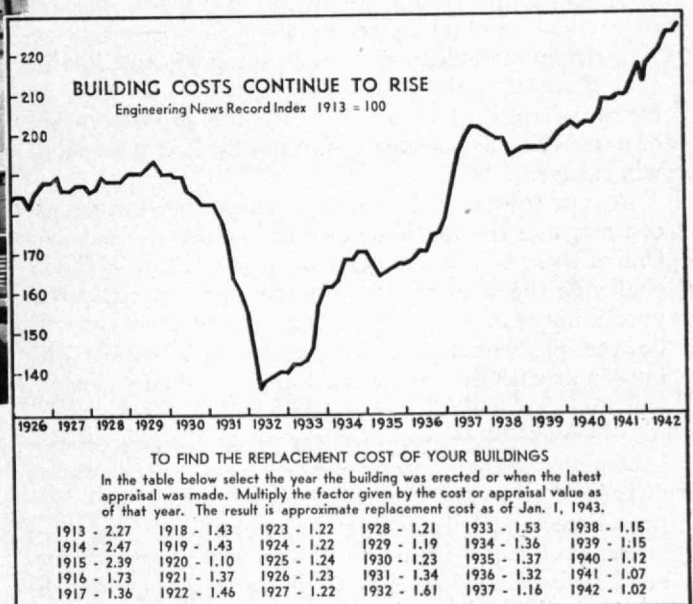
**120 Potter Street, Cambridge, Mass.**

*President, Dudley Clapp, '10*

*Chief Chemist, J. Arthur Hansen, '34*



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Are you insured according to today's values?

Is your present insurance in step with the increase in general building and material costs?

These are questions which — for the security of your business — you should be able to check off with a "YES"! Adequate insurance is all the more important today because due to war shortages you may not be able to replace your plant at all! If you *can't* replace your plant or equipment, you'd certainly want the equivalent money-value. *Is that possible with your present insurance?*

Although the Factory Mutuals place greatest emphasis on what you want most — *the protection of your property from fire* — their strong loss-

paying ability further safeguards plant investment when an unexpected disaster does occur.

If you haven't recently reviewed your insurable values, you'll find the above table of interest.

HOVEY T. FREEMAN, '16  
President

NOTE: "Tech" men predominate in the more important positions of the individual companies that make up the Factory Mutual Group and of the jointly operated Inspection Department.

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**Over \$15,000,000,000 Insurance in Force  
in the Factory Mutual Companies**



## TOWARD THE MOUNTAIN

(Continued from page 256)

on, caught in a depressed and gloomy valley of defeat. There is no point in any word to you either of warning or of exhortation on this matter. Though our nation had been drugged by two decades of wishful thinking, overconfidence, and shortsighted isolationism, we are now awake and at work. The surest test of morale is the spirit in which selfish desires are abandoned in order to achieve a higher, unselfish purpose. By that test our national morale is now quite good, better than it was six months ago, far better than it was before Pearl Harbor. The forces of work, sacrifice, and victory are today irresistibly on the march in America. To these forces, the Institute is contributing in many ways through its Alumni, its staff, its laboratories, and now soon through you. To struggle ahead through hardships with effective determination requires incentive and faith — an incentive strong enough to motivate the effort, and a faith that the goal of the struggle is possible to achieve. As far as the war is concerned, our incentive is preservation of ourselves and our ideals; and our faith that we shall win is sure.

Beyond the war lie further obstacles, some of which we can see, like the foothills, in dim but definite outline. One of these will be the peace arrangements, which will challenge the wisdom, the courage, and especially the unselfishness of all participating nations. Another will be the postwar financial readjustments, which will burden us with debt at a period when we shall no longer feel the wartime urge to Spartan sacrifice and virtue. Another will be the inevitable period of readjustment in employment, when the Army and Navy will be largely disbanded, the war industries closed down, and the peacetime industries not yet in full swing. These economic problems within the nation will again call for all the wisdom, courage, and unselfishness that we can muster individually and collectively.

In all these postwar readjustments, we shall doubtless make some mistakes, we shall doubtless have some failures, and we cannot hope to be free of some political demagogues, some business profiteers, some labor racketeers, some selfish pressure blocs, and some stupid leadership. We can only try to minimize such evils by continuing to run our affairs with the same type of courage, co-operation, and, where necessary, sacrifice which the war emergency is calling forth. Times of emergency have always brought out the best in us. The postwar era, like the war years, will be a period of emergency; we must not let down in our idealism or our determination to see things through to a satisfactory finish. Our great and tragic error 24 years ago was that we let down too soon.

An analogy comes to mind out of an experience my wife and I had when we were canoeing in the inadequately mapped lake region along the height of land between Lake Superior and Lake of the Woods. We had gone down a deep rapids between two perpendicular cliffs only to come out in a pond which was also rimmed with cliffs and had a raging waterfall for its sole outlet. Except by hazardous scaling of these 100-foot cliffs and hauling our canoe up by rope, the only escape was to

paddle back up the rapids. This we tried, and by taxing our strength to the utmost, we reached smooth water at the head of the rapids. Being tired out, we relaxed our efforts. The smooth water, however, was deceptive — it was smooth, but it was swift — and the first thing we knew we were swept helplessly back down the rapids. Then we rested for about an hour to regain our full strength. We climbed a little way up the cliff to look upstream and plan an upward course that would take full advantage of the eddies and avoid the worst stretches. When we again worked upstream, we did not let up when we passed from the rough into the smooth water, but we kept on with all our might till we were far from the current. Then we landed, flopped for a while, and decided we had done enough that day.

In the last War, we quit paddling when the sound of firing ceased. We wanted to forget the struggle and sacrifice, and to take things the easy way. As a result we were again swept back into the turbulent river of war. Now we are paddling as hard as we can again to get back to peaceful waters. God grant that we may have learned our lesson so that this time we shall not be deceived when we reach smoother waters but shall have the wisdom and courage to keep on paddling until we are certain that we are safely free from the currents which can again plunge us into war.

But I am mixing my metaphors. I was taking you on a mountain-climbing trip and then shifted you into a canoe. So let us get back for a while to plain language.

You who are being graduated from this institution have a greater incentive than most to win the war, win the peace, and get on to your goal in life, because the fields in which you have chosen to secure training for your careers happen to be fields which will inevitably be rich in opportunity after the war. Let me illustrate by pointing out four factors in the situation.

(1) I do not believe that our government will dump ten million soldiers and sailors back into civil life to shift for themselves as soon as the war is over. Neither will the millions of employees in the war industries simply be thrown out of work. Such actions would create an unemployment and a political crisis that no government could stand. Therefore the government must plan to sponsor, directly or indirectly, some great program of useful employment to taper down the numbers mobilized for war and enable them to be absorbed into the ultimate normal business life of the country. The problem of publicly sponsored work will be not unlike that of the depression period 10 years ago but with two great advantages: First, the lessons and experiences of the last decade can guide us to make our next attempt a better one. Second, the war will have created an enormous reservoir of deficiencies in products and facilities which the man power of the nation can be mobilized to supply. The types of useful work thus to be done will of necessity include things principally of a technological character — buildings, housing, reconstructed railroads, highways, new civilian air transport facilities, ocean shipping, and so on.

(2) Industry will begin a tremendous job of retooling for production of civilian goods — the automobiles, radios, refrigerators, typewriters, civilian aircraft, car-

(Concluded on page 260)

ESTABLISHED 1818

*Brooks Brothers,*  
**CLOTHING,**  
 Men's Furnishings, Hats & Shoes

MADISON AVENUE COR. FORTY-FOURTH STREET  
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**"IT PAYS TO BUY AT BROOKS BROTHERS"**

It pays to buy moderately priced clothes in a store that also has earned the reputation for having the finest things money can buy. It pays especially at Brooks Brothers where the same taste, the same knowledge, the same executive staff that picks out the best woollens, shirtings, necktie silks, hats and shoes — the best of everything wearable that England, Scotland and

America can produce — also personally specifies every detail in less expensive clothes.

At Brooks Brothers — no matter what you pay — you are sure that styles, materials and workmanship are right.

*Ready-made Suits, \$58 to \$92*

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*Cambridge, Massachusetts*

**T**HE schools of Architecture, Engineering and Science, the Graduate School and the Division of Humanities offer instruction and opportunities for research, both undergraduate and graduate, in the following fields of study as well as in allied subjects:

**SCHOOL OF ARCHITECTURE**

Architecture  
 City Planning  
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**SCHOOL OF SCIENCE**

Biology and Biological Engineering  
 Chemistry  
 General Science  
 Geology  
 Mathematics  
 Physics  
 Public Health

**SCHOOL OF ENGINEERING**

Aeronautical Engineering  
 Building Engineering and Construction  
 Business and Engineering Administration  
 Chemical Engineering  
 Civil and Sanitary Engineering  
 Electrical Engineering  
 General Engineering  
 Marine Transportation  
 Mechanical Engineering  
 Metallurgy  
 Naval Architecture and Marine Engineering

The Catalogue contains full information and will be sent gratis and post free upon request. All correspondence regarding admission either to undergraduate or graduate study should be addressed to the Director of Admissions, M.I.T., Cambridge, Mass.



## TOWARD THE MOUNTAIN

*(Concluded from page 258)*

pets, and hundreds of other articles production of which was stopped during the war and for which a huge demand will have accumulated.

(3) To avoid danger of quick overproduction of old types of products, manufacturing concerns will bring entirely new types onto the market. A strong realization of the importance of technological progress was built up during the recent depression years; it was one of the good results of the depression. Now many companies as a consequence have new products or new plans on the shelf ready to develop and introduce to the public after the war.

(4) Most of the other nations of the earth will have suffered tremendous destruction of public works, transportation facilities, housing, and all kinds of products and facilities. To replace these things will be an enormous job in which our nation will have to take an important part. For some of this reconstruction, plans are already being drawn.

Every one of the great postwar reconstruction activities will require enormous numbers of architects, engineers, scientists, and administrators with technological backgrounds. All of them represent exactly the fields of specialized education to which Technology is dedicated. They represent exactly the fields in which you have secured your training. Consequently I believe that the inevitable course of events will find you at the types of

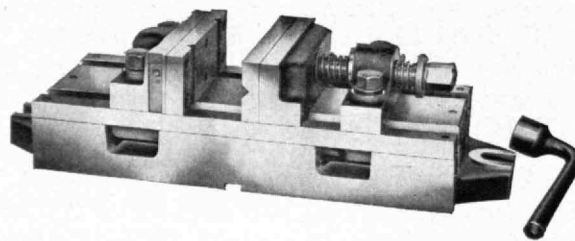
work which you had planned to follow before the war intervened. Now that war is upon us, we must set to it and do the job of winning it, each in the manner which falls to his lot. Even in war jobs, the training and knowledge which you have gained at the Institute will stand you in good stead. And after the war, there will be professional work for you to do — plenty of it — unless we as a nation sadly mishandle the opportunities that will come to us.

Several years ago, in a late afternoon, I was on a ship traveling from Seattle toward Victoria on Puget Sound. It was a day of rare visibility, and we could see Mount Rainier, 120 miles away, looming high in the sky like a golden monument, with range on range of islands and foothills extending, dimly outlined, through the intervening reaches. So, I like to think, stands out the future of America, a golden future that is accessible to us if we have the skill and courage to navigate the intervening islands and surmount the foothills.

As you of the Class of 1943 start on this journey, with such supplies as we have been able to provide you, we bid you have faith and courage. We who are older are trying to make the journey with you. Some of us will get only part way and perhaps none of us will reach the top of the mountain, but the way is full of interesting, if difficult, adventure and every foothill surmounted will justify the effort. As you enter the next stage of your journey, we wish you safety, if God will, and that inner satisfaction which is the reward of sincere effort in a good cause.

... M A N U F A C T U R E R S O F ...

**Die Sets for Power Presses  
Accessories for Tool and Die Makers  
Modern Machine Vises for Machine Tools**



**THE PRODUCTO MACHINE COMPANY**

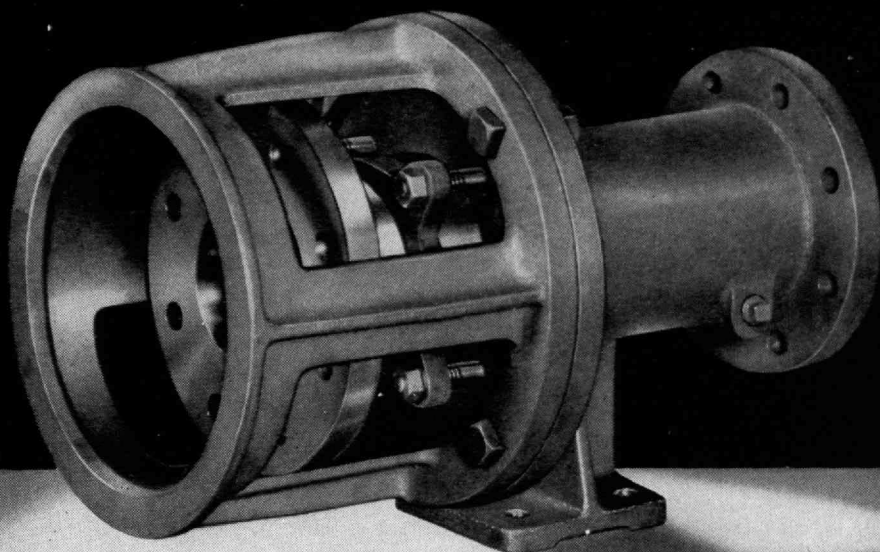
Bridgeport



Connecticut

N. M. Marsilius '17

Branch Office: Detroit, Michigan



Webster Single Slip Type Expansion Joint, Crosshead Guided.

## ***Serving America at War***

# **Expansion Joints**

For today's far flung military and naval air bases, refueling installations, extended army cantonment hospitals and war production plants, Webster makes a simplified line of cast iron Expansion Joints—designed to save critical materials and machine time. Limited to most widely used pipe sizes. Available in single slip or double slip, with 4" or 8" traverse per slip. Standard weight models are provided for maximum operating pressure of 125 lbs. per sq. in. The maximum operating temperature is 450 degrees F. Regular packing is for steam and water. Special packing can be provided for hot oil and hot gas. Webster Internally Guided Cast Iron Expansion Joints are described in Bulletin B-1103A. Webster Crosshead Guided Expansion Joints, fully meeting specifications calling for both internally and externally guided cast iron type, are described in Bulletin B-1101A. Ask for bulletins by number.

Keep your present Webster Equipment in first-class condition—add years of life to your heating system—by following the practical heating advice in Webster Service Bulletin S-500-E. A copy is yours for the asking.

**WARREN WEBSTER & COMPANY**  
CAMDEN, N. J., EST. 1888, PIONEERS OF VACUUM STEAM HEATING

**STEAM Heats  
America—**

**at war!**



**A** MIGHTY flood of "Chicago pianos"...

Fire-power to engulf the Axis . . .

Machine guns by the million . . .

That is America's promise to the Victory Program—and America is going to beat that promise.

The time-table of war construction has been reviewed in order to get essential new plants into production without delay.

Heating problems presented by plant conversion and by the new building program call for a proven method of heat distribution.

When steam is selected as the heating medium, all of the experimenting has been done. Steam harnessed and brought under control with Webster Systems of Steam Heating has proved its ability to heat every section of a building to the desired temperature at minimum cost.

Today, we are engaged in direct war work, but manufacturing facilities are still available to supply Webster Steam Heating Equipment for buildings serving the war effort.

Essential repairs for Webster Systems are available on A-10 priority, under W.P.B. Emergency Repair Order P-84. Orders should be limited to actual needs.

Warren Webster & Company, Camden, N. J.  
Representatives in 60 principal Cities

**Webster**  
**Steam Heating**

This is one of a series of advertisements that tells the public of the part that Webster Steam Heating and the Webster organization plays in the war effort . . . appearing regularly in leading business, industrial, engineering and technical publications.



## SCIENTIFIC MAN POWER

*(Continued from page 238)*

of workers, whether skilled or unskilled, to transfer from their peacetime occupations to work made essential by the war and to acquire those skills which war needs demand.

It is exactly this result that is being accomplished, to an extent greater than the layman is aware of, in the field of science. By means of intensive transitional courses, mature scientists are being trained and transferred from one engineering field to another. The civil engineer, for example, whose work has been the structural design of skyscrapers, bridges, and highways, has a fundamental knowledge which enables him to turn quickly to the solution of problems in aeronautical engineering, automotive engineering, or shipbuilding. The knowledge of the biologist, the chemist, the physicist, and the mechanical engineer becomes, under special training, of great value in problems of food processing.

On a national scale much of this intensive training of technical experts is being administered by a division of the United States Office of Education known as the Engineering Science and Management War Training Program. With this program the Institute has effectively co-operated. Indeed, I know that you have retrained some of your own graduates to return to the Institute as teachers and researchers in fields of wartime importance.

Yes, unquestionably the tragic demands of war have accelerated the progress of science. As we have seen, war has accelerated the training of scientific man power, stimulated research beyond all former bounds, and revealed to us the adaptability of our scientists. Under the stress of war a degree of scientific co-operation hitherto unknown has come into being. Here at the Institute at this moment are men on leaves of absence from 73 educational institutions and 43 industrial organizations, working together in what can only be described as a national undertaking of American colleges, universities, and industry. This is indeed scientific man power at war. And scientific man power is having its effect, every day, directly on the enemy. Once again, details cannot be gone into, but equipment designed at the Institute is being used in successful operations against the enemy even as we are gathered, and it is being produced in ever larger quantities for the armed services to use in carrying the fight ever closer to the enemy's home bases.

Yes, this is war.

And though the road to victory may be long and we know that it will be hard, we shall win.

And then there will be the peace.

Is there anyone who has ever supposed for an instant, or who has ever been sufficiently deluded to imagine, in the midst of wartime pressure, that with the peace would come a lessened demand for scientific and engineering skills? You do not need me to tell you, I think,

*(Continued on page 264)*

# NATIONAL ELECTRIC REFRIGERATOR LTD.

P.O. Box 224

•

Phone 207

## MONTMAGNY, QUEBEC CANADA

ADRIEN J. COLLIN, '33, MANAGER

Manufacturers of Aircraft Parts

# Third floor back...

● It's 4 p.m. on a quiet street.

A slip of a girl, with a suitcase a little too heavy for her, climbs the brownstone steps and rings the bell.

Her heart is beating fast, but it's not from the weight of the suitcase.

She's wondering what it will be like, in a furnished room, so far from home.

She's hoping she'll make good at her new job.

She's thinking that maybe now she understands a little bit of what Tom must have felt when he said goodbye and left for camp.

But she's not going back till it's over.

Millions of men and women today are finding themselves in strange surroundings—in situations they couldn't have imagined a few years ago. They are giving up their pleasures and comforts—and often much more—to bring future good to the whole world. And they don't mind—too much—because it will be worth it.

Industry, too, has put aside for the duration its never-ending job of supplying those pleasures and comforts which have helped to make life fuller and better in

America than anywhere else in the world. Industry is working today with strange new materials, toward grimmer goals—but working with the *same ingenuity and skill, organization and experience, initiative and resourcefulness*. For these things are as much a part of American industry as they are of Americans.

And because they are, we have not found today's production task, big as it is, too big. Because they are, we shall not find tomorrow's challenge, great as it will be, too great. With new materials like plastics, new sciences like electronics, offering hope and fuller opportunity; but with the old American ingenuity and courage and enterprise—we shall face the task of building a better world. General Electric Co., Schenectady, N. Y.

★ ★ ★

*The volume of General Electric war production is so high and the degree of secrecy required is so great that we can tell you little about it now. When it can be told completely we believe that the story of industry's developments during the war years will make one of the most fascinating chapters in the history of human progress.*

**GENERAL  ELECTRIC**

952-455C-211





## SCIENTIFIC MAN POWER

*(Continued from page 262)*

that the entire world will be calling on you to restore the ravages of war. If it is true that scientists and engineers are inspired in looking ahead, if it is true that they find their greatest stimulation in the sight of problems which they feel themselves competent to solve, then I can imagine no group with greater cause for inspiration and stimulation than you graduates.

None of us can say for certain now in precisely what form the world will exist, or even should exist, after this war. Prophecy is not the most practical of pastimes. And yet each of us has his or her hopes for the future, his or her ideas of what kind of a place the world might be made to be. Whatever the world is to be like, this institution and the other technological institutions of America will have magnificent opportunities in the years of reconstruction. At the time of the founding of the M.I.T., Americans who wished to acquire specialized knowledge in graduate courses were forced to study abroad.

Since that time, however, the American technical school has become as indigenous as the American liberal college, whose total preservation in these days of crisis is a matter of the deepest concern to all of us. The American technical school has attracted students from all over the world. The student body and the Alumni of the Institute alone include persons from 81 countries. One of your largest groups of foreign students has

long been the Chinese. The scholastic record of your Chinese students has consistently been the highest for any group in the Institute. The studies pursued by these men at Technology, over the years, form an interesting pattern.

Formerly they concentrated upon civil engineering — principally highway construction and flood control. Then their emphasis shifted to electrical engineering. Five or six years ago, for reasons only too well known to all of us, they began to study aeronautical engineering. At present, their activities are divided among these three fields. When the war is won, is there any doubt that new gifted students from China will come to acquire the techniques necessary for the rebuilding of their ravaged land? Nor is there any doubt, I think, that in the new world which will follow the peace, China will have technological institutes of her own.

Our Latin American neighbors, nearer at hand, are sending ever increasing numbers of students to achieve that mastery over the forces of nature which will result in closer ties and increased mutual knowledge and understanding. The war has kept at home the fine students who formerly came to this Institute from Russia. But the results of the training which they followed here — their studies in aeronautical engineering, for example — are apparent in the victories being won these very days on Russian soil and in the Russian air. Recently you have added the study of the Russian language to your curriculum, where it now stands with French, German,

*(Continued on page 266)*

## *Humidity—Saboteur*

WITH the stern certainty of Time, Humidity the Saboteur will slow down vital War processes during the summer months.

To you men whose job it is to keep production up to quota, the damages and delays caused by high humidities are well known. Now, more than ever before, it is your responsibility to prevent Humidity Sabotage.

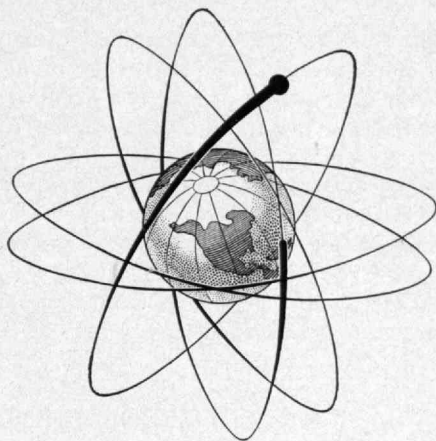
Humidity can be controlled.

Prevent waste of precious time and materials by being ready to stop this saboteur when he strikes your plant this summer.

The experience of our Engineers is yours to show you the best method of Humidity Control for your process, and handle every detail of installation.

# HAROLD J. RYAN, INC.

101 Park Avenue, New York City



## If I were an Engineer...

... I WOULD PAUSE *TODAY* TO EXAMINE THE OPPORTUNITIES of my profession and the nature of my own work in relation to the swiftly moving drama of these stirring times.

And I would ask myself how I could contribute to the war effort and, at the same time, build a foundation for a *secure future after the war*.

*This is the kind of opportunity the International Resistance Company offers to engineers with experience in the design, development and/or manufacture of small component parts in the electro-mechanical field.*

★ ★ ★

Today, IRC has world-wide recognition in the production of fixed and variable resistance devices. While the war lasts, our expanded production will continue to be earmarked for the Armed Services and for industry serving the war effort. But, after the war, the field of electronics with its innumerable applications to post-war living will demand many new developments. Both now and for the future we plan to expand our permanent engineering staff.

Here at IRC you'll find a sound organization with standards of workmanship which have earned for IRC products a position of leadership in their special field. . . . You'll be working with a forward-looking management group, in association with friendly and earnest people. . . . You'll be busy today and secure tomorrow!

If you have had the experience we are seeking and you're not now employed at your highest skill in war production work, we shall welcome word from you giving us the customary professional, business and personal data for careful *and confidential* evaluation.

Or . . . should you not be free to act upon this suggestion, you may have friends and acquaintances who are. Won't you tell them, please? We'll be grateful, and they may be interested for themselves or others.



**INTERNATIONAL RESISTANCE COMPANY**

423 N. BROAD ST., PHILADELPHIA



## SCIENTIFIC MAN POWER

(Continued from page 264)

and Spanish. Is it too much to hope that the end of the war will find a pool of technically trained Americans, Americans specially trained also in the languages, traditions, and backgrounds of foreign countries, who will be available for undertaking the most instantly pressing needs of postwar reconstruction abroad? That, it seems to me, is a goal to aim at.

And do not think, when I talk about the work which will be waiting to be done after the peace, that I do not mean our own country is to be included. We shall continue, please God, to be spared the ravagings which have been visited upon other lands. Despite that probable immunity, however, and despite our much vaunted "high American standard of living" — which we hope, indeed, will become still higher and become the world's standard of living — you and I know that even this country has never had enough of the useful and desirable things which science and engineering can bring into being.

Recent floods on the Ohio and on the eastern and western rivers have shown us how fruitful can be the results of flood control — but also they have shown us how much more remains to be done. If employment is to be provided at all times for our citizens, new industries will be needed. Large areas must be protected not only against flood but also against drought and against soil erosion.

Our methods of transportation and distribution, even apart from the wear and tear which they will have suffered from the strain of war, are far from being incapable of improvement. The discovery of new industrial uses for agricultural products is in its infancy. And the provision of decent housing facilities for the masses of our population can scarcely be said even to have been born. Every one of these great home problems is a challenge to the engineer and the scientist who have a sense of social responsibility.

For the most part, the limit of our national resources is known; the end of some of them is definitely in sight. Hence, conservation of the resources yet remaining becomes of critical urgency. This, in turn, demands the most thrifty use of those resources which are exhaustible, the most provident possible use of those which may be perpetuated, and the never ceasing search for substitutes. For all of these ends, ever finer techniques are demanded. Such techniques are objectives of you graduates of 1943.

Above all, when peace does come, let us not lose those gains in American life which, as we have seen, it has taken the tragedy of war to bring to us — particularly that hard-won spirit of co-operation which, in the very midst of war, has brought educational staffs into closer contact with each other as well as with industry and with the agencies of government, which has promoted cross-fertilization among many different fields and among many fine minds from different back-

(Concluded on page 268)

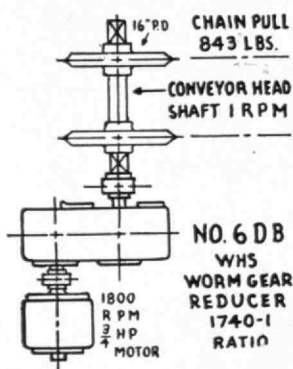
## When to Consider TORQUE LOAD instead of INPUT HORSEPOWER

**LARGE REDUCTIONS . . .** to accommodate low final speeds . . . call for consideration of torque load rather than input horsepower.

The theoretical H.P. required, for instance, to drive the slow-moving conveyor installation shown at left, is unbelievably small. It is a common experience to find such installations *overmotored*.

This and other problems are discussed and solutions given in our Engineering Service Bulletin, "Torque versus Horsepower." Certainly you may have a copy. Just drop us a line.

Cutter P. Davis, M.I.T. '19, President



*in a* **SPEED REDUCER**



**No. 6 DB  
WHS Speed Reducer**

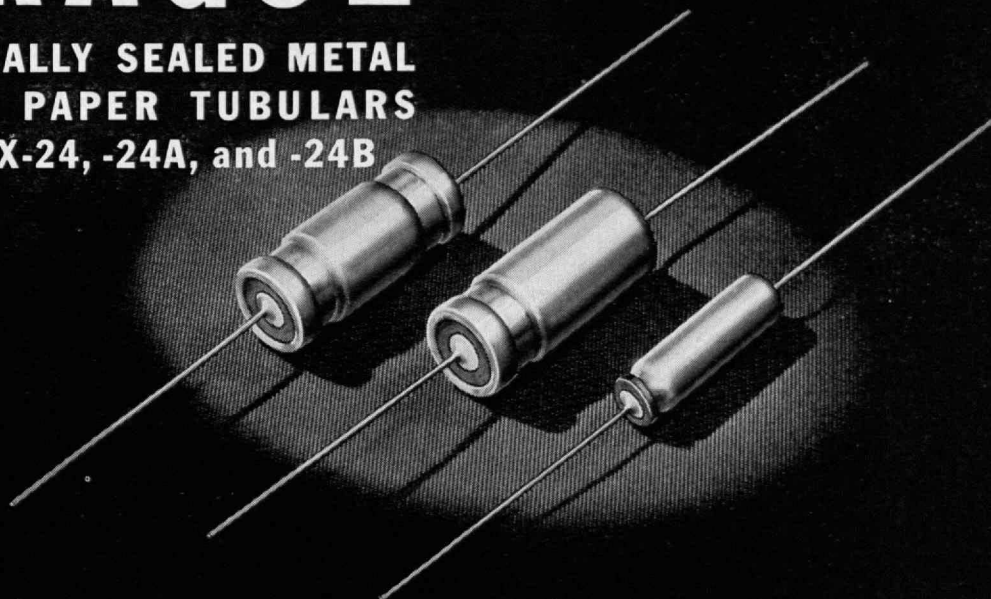


**WINFIELD H. SMITH, Inc.**

55 MAY STREET...**SPRINGVILLE**.. ERIE COUNTY.. **NEW YORK**

# SPRAGUE

**HERMETICALLY SEALED METAL  
ENCASED PAPER TUBULARS  
TYPES PX-24, -24A, and -24B**



## BUILT TO DO MICA CAPACITOR JOBS *... and do them well!*

**SMALL**—light in weight—hermetically sealed, and outstandingly sturdy, these Sprague Metal-Encased Paper Tubular Capacitors have proved eminently satisfactory for numerous blocking and by-pass applications previously assigned exclusively to molded mica units. Not only is this true as regards less critical "mica jobs," but also on more exacting applications where characteristics such as temperature-insulation resistance, voltage-capacitance, or temperature-capacitance are important considerations.

There remain, of course, certain applications where mica capacitors should still be used, and Sprague regularly produces large quantities of transmitting mica capacitors in a complete range of types and sizes.

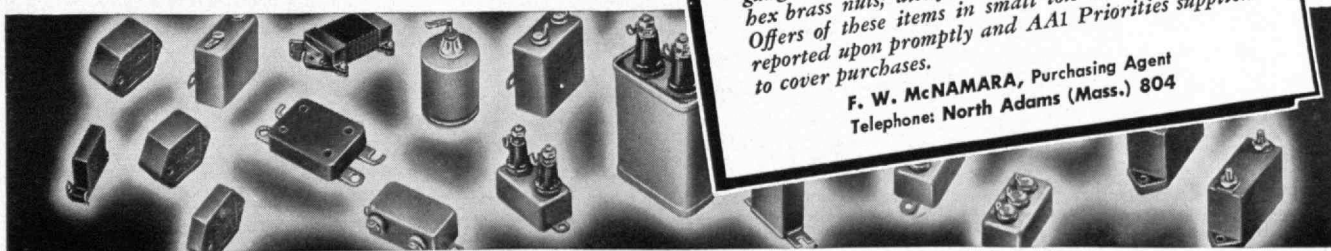
Deliveries of both types are obviously dependent on prevailing priorities. Production facilities—especially on the Metal-Encased Paper units—are being steadily expanded, and Sprague engineers will gladly cooperate in determining the adaptability of these Capacitors to your requirements.

**SPRAGUE SPECIALTIES COMPANY**  
North Adams, Mass.

### MATERIALS WANTED!

Sprague offers a constant market for large quantities of critical materials. Present requirements include: 7/16" and 1/4" hex brass rod, free turning; 5/16" and 1/4" diameter brass rod, free turning; #22 gauge long ternes, 8# to 15# coating; 8/32" standard hex brass nuts; also ferrous and non-ferrous metals. Offers of these items in small lots or large will be reported upon promptly and AAI Priorities supplied to cover purchases.

F. W. McNAMARA, Purchasing Agent  
Telephone: North Adams (Mass.) 804



**MANUFACTURERS OF A COMPLETE LINE OF RADIO INDUSTRIAL CAPACITORS AND KOOLOHM RESISTORS**



## SCIENTIFIC MAN POWER

(Concluded from page 266)

grounds, and which, if preserved, will result in more and more graduates of such institutions as this entering the public service of the cities, the states, and the nation.

You who are being graduated from the Institute have had the privilege of spending close to four years in an atmosphere of the purest and most unbounded co-operation. Under a single roof, the many Departments of study and instruction are unified into one great co-operative enterprise by teachers and students from every state in the Union and almost every country in the world.

Unlike the frontiers of nations, those of science have long since been obliterated by goings and comings across the borders. There are no guards, no immigration officers. The only customs requirements are enthusiasm and a willingness to exchange thought and technique. Scientists seek intelligently and co-operatively to understand themselves and the world in which they live, with the object of gaining systematic control of the hidden forces of nature for the further progress of civilization and human society.

Through diffusing this spirit of unity and co-operation which you have acquired in your years of study, no less than through your more material accomplishments, you will perform your vast service to this country and to the world.

## NOT WORK, PRODUCTION

(Continued from page 240)

history, particularly with emphasis upon social and economic affairs, might help us avoid repeating so often the mistakes of the past.

In one way at least I think science may have contributed to the prevailing confusion of thought. Science and technology have produced such a number of complicated things by methods which to the uninitiated are so obscure, and the popular acclaim accorded to scientific achievement is so abject, that we have tended to the opinion that nothing is simple. We have befuddled ourselves no end, and nowhere, it seems to me, is confusion more confounded than in some of our current ideas on economics.

Consider for a moment the subject of money. Most people, if closely questioned, would probably admit they do not understand much about money except that it is nice to have, hard to get, and almost impossible to keep. In fact, our respect as a nation for our own ignorance about money is so profound that we countenance preposterous absurdities! For almost 10 years now we have by legislative fiat made it illegal for any individual to own gold. Meanwhile, equally arbitrarily we announced to the world that gold, previously evaluated by us as worth \$20 an ounce, would thenceforth be valued at \$35 an ounce. We invited everyone all over the world to ship it to us, and at this inflated value we per-

(Continued on page 270)

*Owned, Officered and Manned by New Englanders*

### **Boston** INSURANCE COMPANY



*Incorporated 1873*

For 70 years this Company has rendered unfailing service to the public — from insuring clipper ships to vast industrial plants and civilian properties throughout the country.

### **Old Colony** INSURANCE COMPANY



*Incorporated 1906*

The emblem of the Mayflower signifies the essential integrity of the Company's New England background. Through the years, it has maintained unassailable financial strength.

*Home Office: 87 Kilby Street, Boston, Massachusetts*

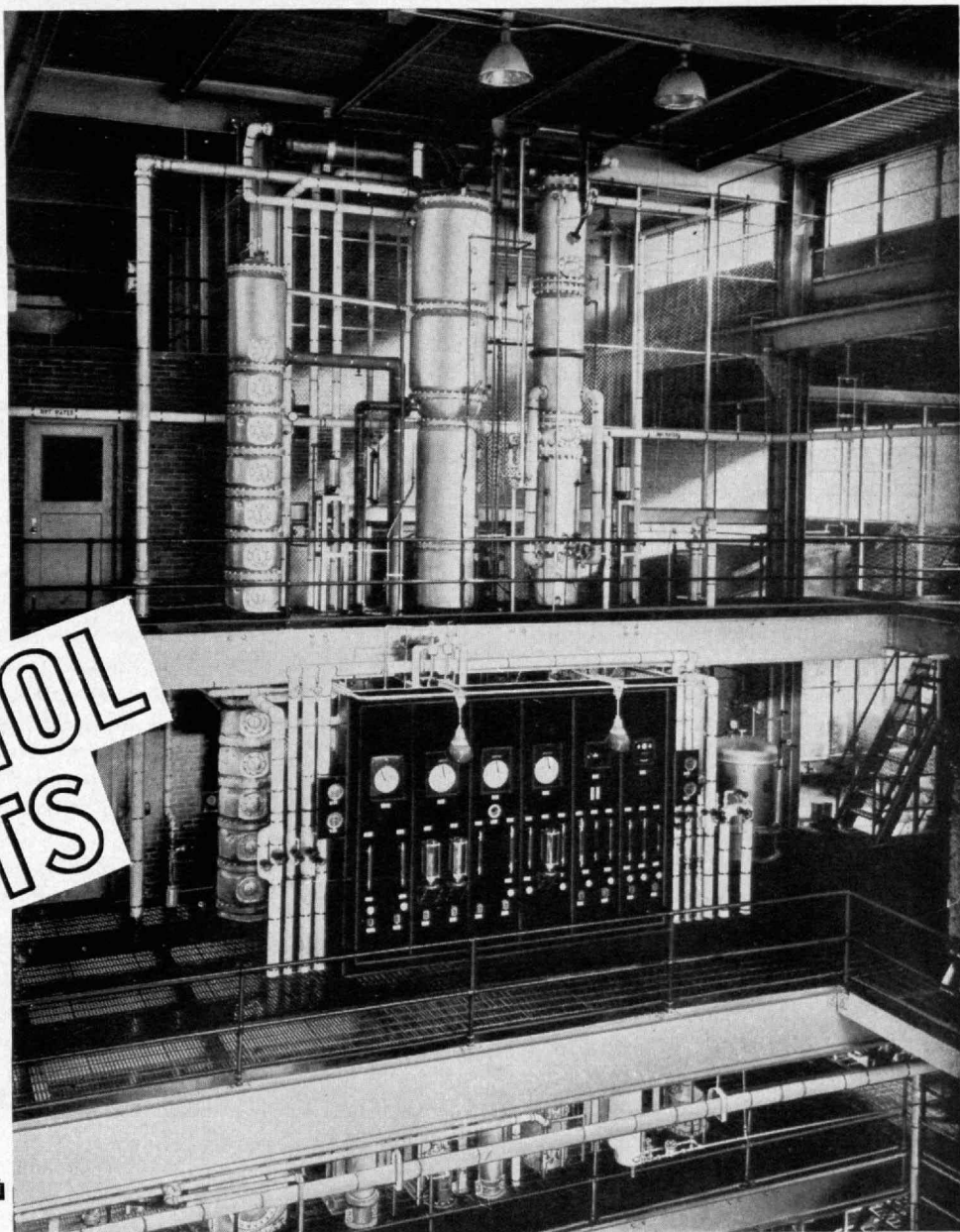
WILLIAM R. HEDGE, '96, *President*

HENRY R. HEDGE, '96, *Vice-President*

# ALCOHOL PLANTS

Designed  
and Built

by  
**VULCAN**



THROUGH the use of Vulcan processes embodied in the relatively simple continuous distillation unit illustrated above, refined anhydrous ethanol can be produced from distiller's beer with a steam consumption of less than 20 pounds per gallon; conclusively demonstrating economy of operation heretofore unapproached.

During this critical period, when alcohol production in an unprecedented volume is so essential for the success of the War Effort, Vulcan's comprehensive knowledge of and diversified experience in this field of processing are available to existing distillers and to those who contemplate new production facilities.

***DISTILLATION-EVAPORATION-EXTRACTION***  
**PROCESSES AND EQUIPMENT**

**The VULCAN COPPER & SUPPLY CO., Cincinnati, Ohio**



## NOT WORK, PRODUCTION

(Continued from page 268)

mitted them to buy with it anything for sale in this country! And did they ship it to us! We got about two-thirds of all the gold there is. Men everywhere feverishly dug holes in the ground wherever gold might be found and sent it to us by the ton. What did we do with it? We dug another hole in the ground in Kentucky and buried it! Does that make sense in anybody's language?

There is the story of the lady passenger, talking to the pilot and admiring his skill, who remarked that he must know where all the rocks were. He replied, "No, lady, I do not know where they are; I know where they ain't!" I think that if some of the methods of inquiry and research applied by M.I.T. in the fields of engineering and science were devoted to the study of money, we might soon find some clear sailing and arrive at the conclusion that it was not smart to dig gold out of a hole in the ground in one part of the world and bury it in another hole in the ground in another part of the world, meanwhile giving any foreigner who shipped it to us a fancy price for it in our paper currency and making it a crime for any United States citizen to own gold!

That is not the only funny story I could tell you about fancy economic problems. It is amusing, but it is pathetic, the amount of harm such economic voodooism can do to the processes by which men exchange their goods and services with each other. We must not allow such loose thinking to take root in this country. When the war is over, ten million men want jobs in our

commerce and industry. You men of '43 will want opportunities for useful work for which you have so well fitted yourselves. What are the problems that confront us?

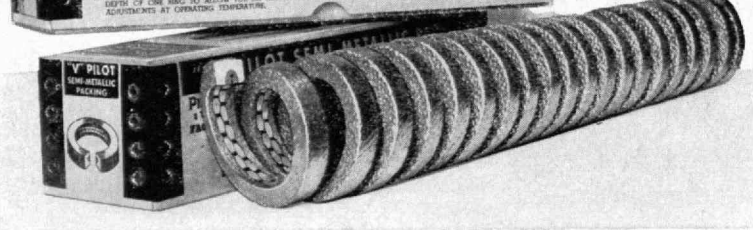
We hear a lot today about the "right to work." What about the responsibility to produce? There is no inherent virtue in work. The less of it the better. It is production we want, with its benefits fairly and equitably distributed. If it is only work for everybody which this country wants, I can give an infallible recipe for it right here and now. Just issue and enforce a decree that from now on no metal plow shall scratch the soil. Return to the primitive agriculture of the Egyptian fellah and plow with a crooked stick. There will be work for everyone. And such work. And such a standard of living! Something less than that of the fellah. Our soil is not so rich as the Nile Valley. We shall have no unemployment. Work will not be a right, it will be a necessity. But like all such schemes — and in recent years we have tried no end of them inherently just as ridiculous — the cure would be worse than the disease.

When this war is over, there will be no question of the necessity for work. Our need and the demand for all the things we are now going without will be insistent. We have the raw-material resources, the vast factories, and the complicated tools required to satisfy our demands. We have a great population of men and women trained and skilled in industrial work. All the ingredients are here. The questions which will arise will relate to the freedom to work — freedom from the enervating re-

(Continued on page 272)

## "V" PILOT SEMI-METALLIC PACKING

SPECIALISTS IN MECHANICAL ENGINE PACKINGS FOR MARINE TRADE, RAILROADS, AND INDUSTRIAL APPLICATIONS.



Send for free Packing Recommendation Selector and Calculator Slide Rule. Every Design Engineer should have one.

"V" Pilot Semi-Metallic Packing, in spiral form, comes in 10 foot lengths, and in sizes from 3/16" up to 2 1/2", advancing by sixteenths.

## THE NEW JERSEY ASBESTOS COMPANY PILOT PACKING CO., INC.

H. S. FITZ GIBBON  
President

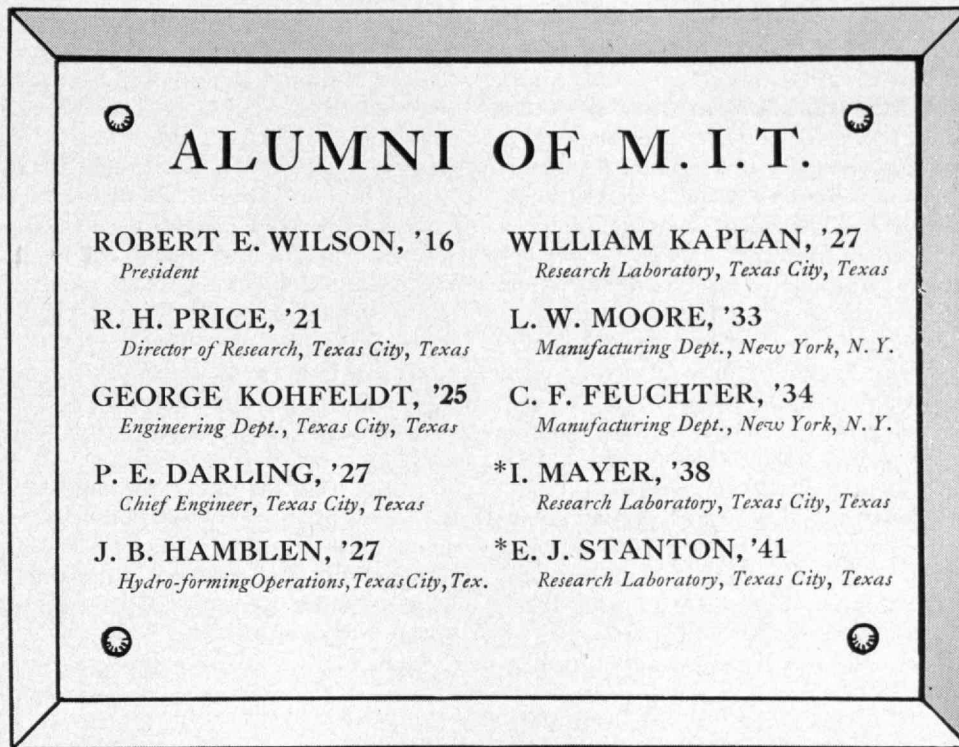
L. J. FITZ GIBBON, '35  
Vice-President

C. S. FITZ GIBBON  
Treasurer

H. S. FITZ GIBBON, Jr., '39  
Manager of Boston Office

1 WATER STREET, NEW YORK

BRANCHES: PHILADELPHIA BALTIMORE BOSTON SAN FRANCISCO NORFOLK CHICAGO FACTORY: SEA CLIFF N. Y.



# Salute to Alma Mater

When Ralph Waldo Emerson said, "An institution is the lengthened shadow of a man," he did not need to add that where there is a shadow, there is also a light. And the light, its source and its power, are the schooling and training of the man.

So . . . this salute to M.I.T. . . which played so important a role and contributed so much to the scientific standing of this company.

AMERICAN



OIL COMPANY

*\*On Military Leave of Absence*



## NOT WORK, PRODUCTION

(Continued from page 270)

straints of stupid political bureaucratic regulations; freedom from the barriers of tariffs and quotas; freedom from the fears that shake men's faith in the future when they see continuing, year after year, national budgetary deficits leading to stupendous debts; freedom to pay or not to pay dues to a union of one's own choosing without coercion by employers, government boards, or one's fellow employees; freedom from the necessity for paying tribute to racketeers; freedom to go into business for one's self without burdensome red tape and restrictions; freedom to finance business without paying prohibitive legal fees to conform to harsh and obscure regulations.

I believe in the right of free men to organize into groups and, under leaders of their own choosing, to make all proper arrangements for the promotion and protection of their own legitimate interests. I don't think great industries can deal with tens of thousands of men on the same simple basis on which the old mill owner dealt with a few hundred. It is a disgrace to American industry that in their dealings with their employees certain employers have at times resorted to practices which made it seem advisable to give specific statutory recognition to the obvious rights of labor.

Under the aegis of laws designed to serve legitimate purposes, however, abuses have grown up in the practices of some labor organizations and on the part of certain labor organizers. These abuses are just as much against the public interest and just as effective con-

spiracies in restraint of trade as are to be found in the history of industry. The correction of such restraints of trade is equally vital to American labor, American management, American investors, and the American public. We must correct this situation if our progress is to continue; unless we do, a revulsion of popular feeling may well be engendered which will sweep out the good with the bad. It is all very well to talk about the "right to work," but it is all utter nonsense without "freedom to work" and "responsibility to produce."

Let's examine this mighty shibboleth, "the right to work," and see what it really means. In the minds of many, the analysis would run like this: Right to work? Surely everyone should have the right to work! Where do jobs come from? Industry hires men, gives them jobs. A soldier returning from the war can't find a job? Then industry must be denying him his fundamental and inalienable rights — the right to work, the right to have and raise his little family, the right to feel a security in his old age, the right to freedom from fear of unemployment and sickness! Who is denying these rights? Industry refuses to accept this responsibility? Down with the selfish tyrants. Destroy the greedy exploiters of the working man! Pass a law about that!

Such is the stuff of demagoguery. I leave to your own surmise the motives of the people who practice it. What are the facts? There is not time to weave the pattern of the millennium or even such a small portion of it as is involved in the development of those conditions which would assure every honest, industrious man the op-

(Continued on page 274)

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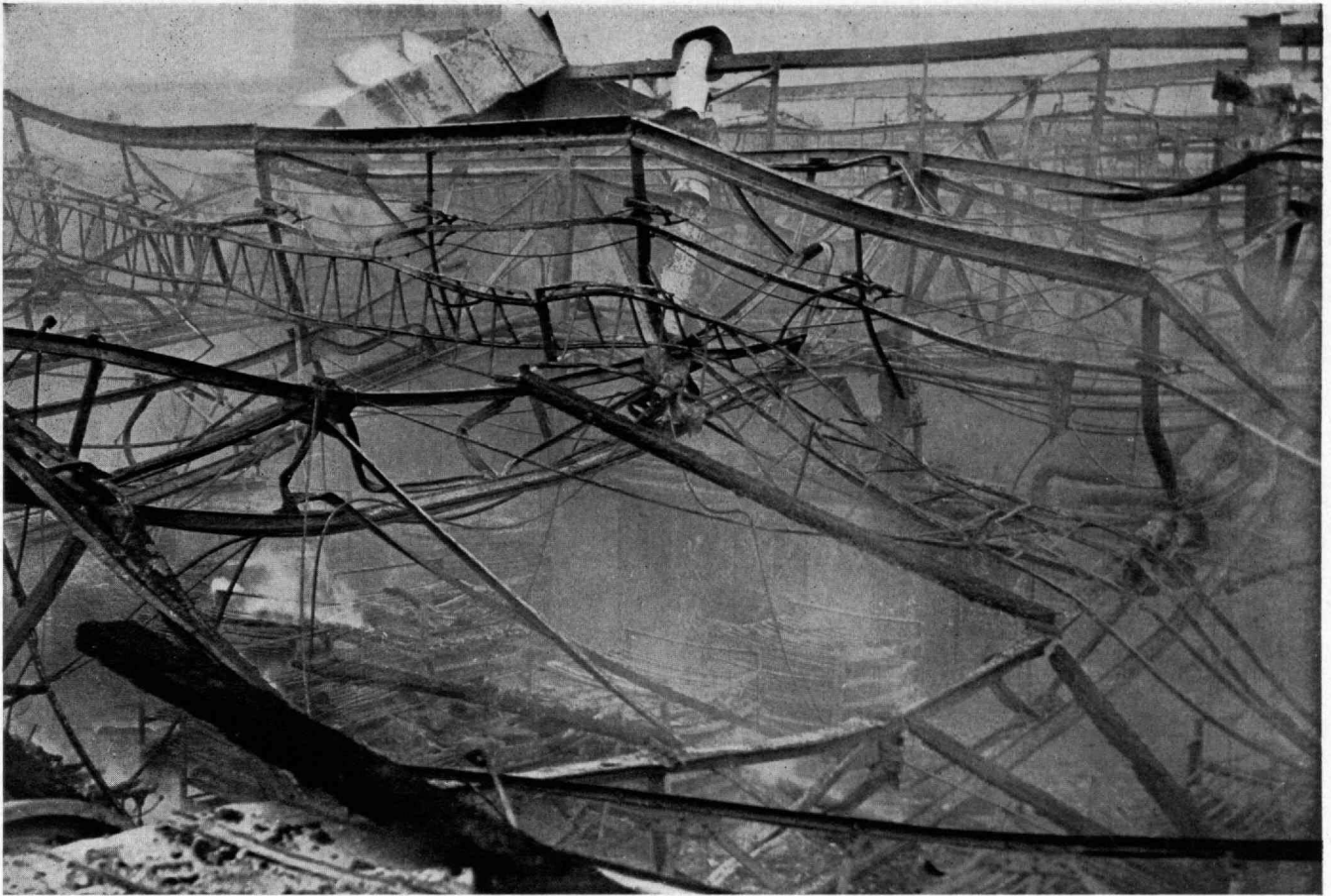
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ELTON E. STAPLES, '26  
District Manager  
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## NOT WORK, PRODUCTION

*(Continued from page 272)*

portunity to make his living, but I should like to ask a few simple questions. Have you ever met or can you imagine an employer, large or small, commercial or industrial, who wouldn't hire more men any time he saw an opportunity to sell the product of their labor at a profit and had the capital to buy the material and provide the facilities with which to employ them? I never have. Free men living under an economy of free enterprise create their own opportunities for employment. Scientific research creates new products upon which new industries are founded, offering new avenues for the investment of savings and new fields for the employment of labor. This system has worked, and it will work again if freedom is restored and the ingenuity of our people again given a chance to express itself. The alternative offered us is a planned economy, so called, under which we are now living as a result of the exigencies of war. Our civilian standards of life deteriorate by the day. The obvious inefficiency of bureaucratic management and the irritation of the regulations imposed upon us would be intolerable except as the price of victory.

Plenty of historical instances, past and current, can be found to show the results of governmental interferences of one kind and another with the processes of trade and industry. Specifically excepting those regulations honestly and intelligently dealing with matters of health and safety, no single instance of governmental action designed to accomplish an *economic* improvement has, in my opinion, ultimately proved to be beneficial in its results. On the other hand, we have the example of the long-term progress of our own great country under a system of private property and free enterprise as formerly practiced. We do not have such a system any longer. If we want it again, we will have to win it back.

Let us look about and see what current conditions really are now, realizing as we do so the great difficulty always experienced in throwing off in the future those shackles in which politicians have acquired a vested interest: Government today prescribes the terms and conditions under which we can raise capital by selling securities or borrowing money, the prices we pay for the raw materials we need, the wages we pay labor, the hours and terms under which labor may be employed, and the prices at which we may sell our products. It is now seriously proposing to tell each individual man the kind of work he may do and the place at which he must work. If we do not obey the rules, we are no longer tried in a court of law by a jury of our peers. We have our ration cards taken away from us! Without any due process of law, we can now be deprived of our means of travel. It is not a far cry to being deprived of our ability to get something to eat! To all this we gladly and cheerfully submit to win the war, but as a peacetime regime it could be described only as tyranny.

Thus we find ourselves in a world of turmoil, battling in foreign lands against forces of evil which deny the validity of those ideals of freedom and that dignity of the individual we hold most dear. There is no sacrifice

*(Concluded on page 276)*

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## NOT WORK, PRODUCTION

(Concluded from page 274)

of blood or treasure we will not cheerfully make to assure victory. Our factories, our schools, our whole resources are diverted to the one end of victory. No one of us would have it otherwise. But when we hear post-war planners say that these wartime governmental controls will have to be carried over if we are to solve our reconstruction problems, let us stop, look, and listen to the voices of our pioneer ancestors! We can all concur in the belief that our political, social, and economic objectives are the improvement of the lot of the common man. We are all just common men in the sense that we seek for ourselves no special privilege other than that greatest privilege which man has as yet attained — the privilege as free men to work out our individual destinies under laws that preserve for us those rights enumerated 167 years ago in our Declaration of Independence and subsequently provided for in the Constitution of the United States. This pattern, this principle, must be preserved.

Men of science and institutions of the character of M.I.T. have always been against reactionary authoritarianism whenever and wherever it has been found. We still are and always will be. You younger men who are fit are going forth to fight for the security of our heritage of freedom. On your success, on your victory, hangs not only the security of our country but the hope of free men the world over. You cannot fail. God bless you.

## THE INSTITUTE GAZETTE

(Continued from page 248)

School and was graduated from Harvard College in 1906 and from Harvard Law School in 1908. He was admitted to the Massachusetts bar in the same year.

Mr. Ketchum is a director of the New England Trust Company, the Boston and Albany Railroad Company, Samuel Cabot, Inc., and the Wyman-Gordon Company. He is a trustee of the Massachusetts General Hospital and of the United Nations Relief Fund.

### To the Polls

**E**LECTION of officers and representatives of Technology Alumni will soon take place; the more than 30,000 constituents of the Alumni Association will soon receive annual ballots. The slate this year presented by the National Nominating Committee — Charles E. Locke, '96, acting chairman, Charles A. Smith, '99, Frederick D. Murdock, '13, Charles P. Fiske, '14, Stanley W. Hyde, '17, Sherry O'Brien, '17, Edward E. Scofield, '19, Winter Dean, '21, George W. Spaulding, '21, and Kenneth M. Cunningham, '22 — is headed by Francis J. Chesterman, '05, VI, the Bell Telephone Company of Pennsylvania, Philadelphia, nominee for the presidency of the Association.

For Vice-president the nominee is Raymond H. Blanchard, '17, X, Hood Rubber Company, Watertown; and for members of the Executive Committee, James A.

(Continued on page 278)



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IS STILL A CRAFT

## THE INSTITUTE GAZETTE

(Continued from page 276)

Cushman, '03, I, New England Power Service Company, Boston, and Alf K. Berle, '27, XV, United Shoe Machinery Corporation, Boston, have been nominated.

Irving W. Wilson, '11, XIV, Aluminum Company of America, Pittsburgh; Walter J. Beadle, '17, II, E. I. du Pont de Nemours and Company, Wilmington, Del.; Donald F. Carpenter, '22, IX-B, Remington Arms Company, Inc., Bridgeport, Conn.; and Francis A. Barrett, '24, VI, New England Telephone and Telegraph Company, Boston, are nominees for term membership on the Institute Corporation.

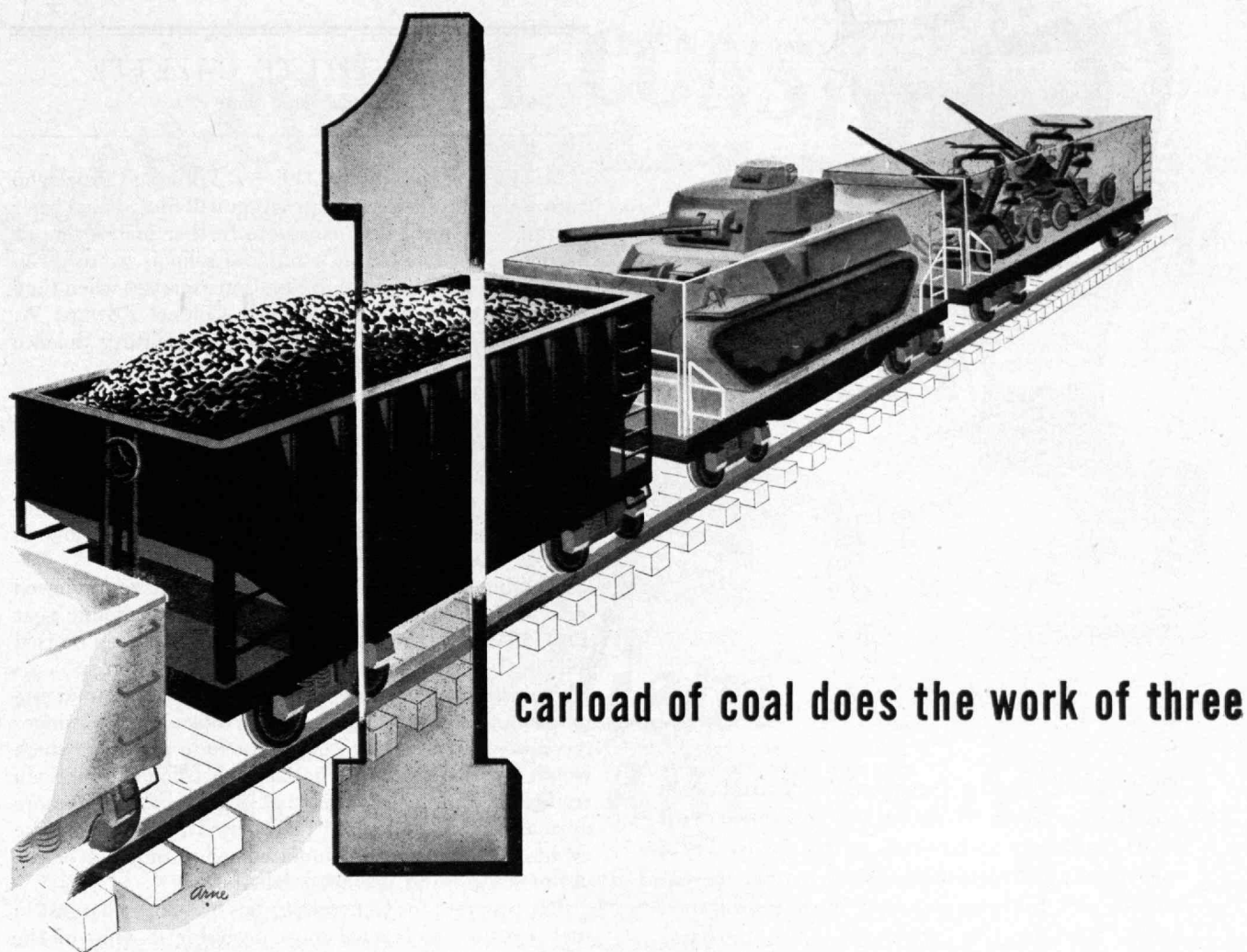
Four members are to be elected to the National Nominating Committee, to take posts vacated by Messrs. Locke, Hyde, Cunningham, and Fiske for Districts 1, 2, 4, and 5 respectively. The slate of nominees, one to be elected from each district, includes: *District 1*: Samuel C. Prescott, '94, V, Professor of Industrial Biology, Emeritus, M.I.T.; Frank P. Scully, '15, I, Scully Signal Company, Cambridge; Raymond H. Blanchard, '17, X, Hood Rubber Company, Watertown; *District 2*: Orville B. Denison, '11, VI, George S. May Company, Worcester; Leigh S. Hall, '14, II, Hall Brothers Company, Concord, N. H.; Robert C. Ashworth, Jr., '25, II, Ashworth Brothers, Fall River; *District 4*: Karl A. Pauly, '96, VI, Schenectady, N. Y.; Leon L. McGrady, '17, XV, Eastman Kodak Company, Rochester, N. Y.; Lauren B. Hitchcock, '20, X, Hooker Electrochemical Company, Niagara Falls, N. Y.; *District 5*: Frank Maguire, '17, V, Reichhold Chemicals, Inc., Elizabeth, N. J.; and C. George Dandrow, '22, IX-B, Johns-Manville Corporation, New York, N. Y.

### Graduation No. 76

**D**ESTINED to serve the nation in the armed forces and in war industries, 338 members of the Class of 1943 were graduated in Symphony Hall at the Institute's 76th graduation exercises on February 1. Under the accelerated academic program, this year's Class left the Institute four months before the traditional day of graduation. Degrees will be awarded in June to graduate students.

Nearly every man in the Class of 1943 had been placed before graduation. Approximately half will receive commissions in the Army, the Navy, and the Marine Corps; the remainder have entered engineering fields essential to the war effort. The aircraft industry took 38; electrical equipment companies gave positions to 28; the machinery, tool, and instrument industries took 17; and the same number entered the petroleum and chemical field. Eleven joined the swiftly accelerating synthetic rubber industry; nine went to Federal and state technical positions; seven were called to engineering posts in the shipbuilding industry; and teaching and research claimed seven. Six will remain at the Institute for graduate study, and six others went into the metallurgical field.

(Continued on page 280)



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## THE INSTITUTE GAZETTE

(Continued from page 278)



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FRANK B. SHIELDS,	'07
EDWIN M. McNALLY,	'18
LEON P. BREZINSKI,	'29
RICHARD L. BERRY,	'30



Members of the Reserve Officers' Training Corps, who because of the accelerated program will not receive their commissions until they complete further instruction at branch service or officer candidate schools, were given special recognition in the graduation exercises when they answered a roll call and saluted Colonel Edward W. Putney, Head of the Department of Military Science and Tactics.

### Visiting Committee Report

**T**HE Corporation Visiting Committee for the Department of English and History \* surveys the work of that Department in the report summarized below as part of The Review's series:

Meeting last March 10, the Committee reviewed activities of the Department during the academic year 1941-1942. The program of instruction had been revised during that year to provide more emphasis on subjects which will give the students more of the background and nature of the war. Professor Arthur M. Schlesinger recommended that the courses include material which would give the students a better conception of American traditions and history in what might be called more normal times in contrast to the period 1929 to date, the events of which have stimulated many or most of the impressions of our present students.

The program for General Studies had been changed in such features as seemed most desirable in view of the present world situation. Robert G. Caldwell, Dean of Humanities, and the Faculty Committee on General Studies eliminated some subjects that were more technical than cultural in value and others that had a small enrollment. New courses having some bearing on the present situation were added. In this way, major alterations in the regular program of General Studies were avoided, but war problems received greater emphasis.

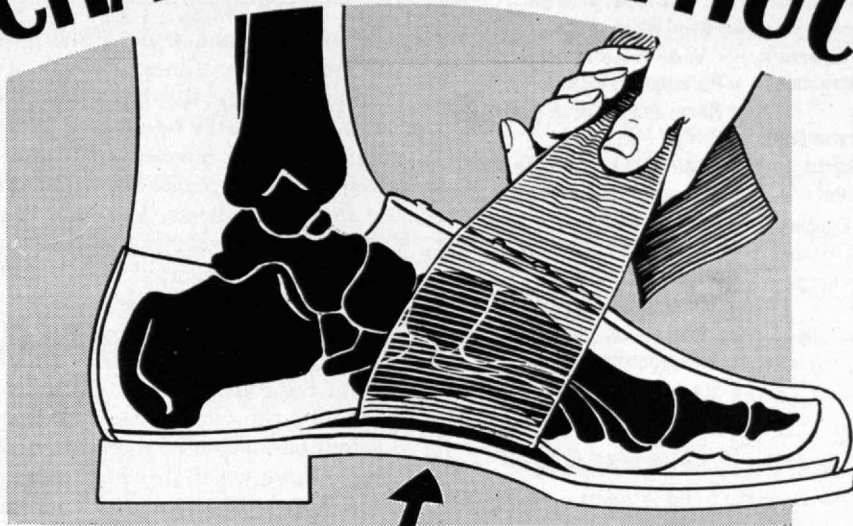
The space allotted to the Walker Memorial Library, both for reading and for the accommodation of a larger number of books, was justified by the greatly increased use of the library in the two years preceding the meeting. Efforts to encourage co-operation on the part of the secondary schools in the preparation of their students in English were increased during 1941-1942.

There appear to be a significant number of students enrolled at the Institute who are unable to read rapidly. This defect seems to arise from a real physical inhibition. It is quite possible that the ratio of such students to the total enrollment is greater at Technology than it is at the average college. A student may be capable or even brilliant in mathematics and other sciences and still fail to make a good record in English and history simply

(Continued on page 282)

\* Members of the Committee for 1941-1942 were Philip W. Moore, '01, Chairman, James A. Tobey, '15, Edward P. Warner, '17, Fred T. Field, Roswell G. Ham, A. Lawrence Lowell, and Arthur M. Schlesinger.

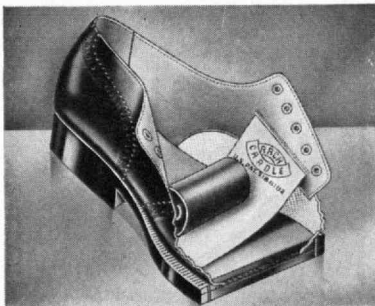
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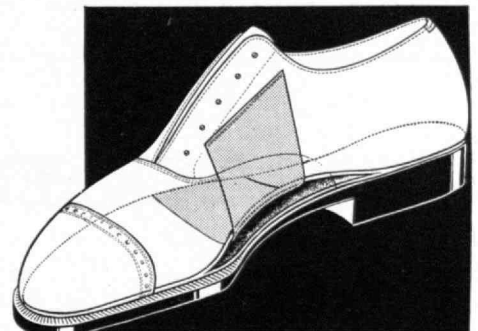
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| Hydrogen                          | Mixture                  |
| Nitrogen                          | Nitrous Oxide            |
| • Dry Ice                         | Carbon Dioxide           |



## THE INSTITUTE GAZETTE

(Continued from page 280)

because he cannot cover the ground so rapidly as the average student does. A study of this situation is being undertaken by the Department to the end that more information may be gathered about the number of students who are affected and some steps may be taken to help them overcome their difficulty.

Penfield Roberts, Associate Professor of History, submitted to the meeting a synopsis of courses in the humanities as presented at six of the other leading engineering schools of the country. The several programs were discussed in comparison with the program at the Institute. In so far as they could draw any conclusion from the consideration of the programs of the different schools, the Committee felt that the programs which might be considered preferable to that in effect at M.I.T. were those which provided more time in the later years for work in the humanities and in English composition.

The Committee feel that the Department is giving an excellent account of itself in promoting the interest of the students in the courses it has to offer and in keeping its work abreast of the times, under circumstances which in an engineering school might well tend to submerge the importance of its work.

### *Leonard Magruder Passano, 1866-1943*

**L** MAGRUDER PASSANO, Professor of Mathematics, Emeritus, a member of the Institute's Mathematics faculty for over 40 years, died at the age of 77 in Laguna Beach, Calif., on January 30, after a long illness. A native of Baltimore, he was graduated from Johns Hopkins University in 1889, his major studies having been in economics, mathematics, and English literature.

Professor Passano joined the staff of the Department of Mathematics at Technology in 1892, commencing a long and successful career of teaching which ended with his retirement in 1936. During these years, Professor Passano published a number of scientific articles as well as the textbooks *Plane and Spherical Trigonometry* and *Calculus and Graphs*.

(Continued on page 284)

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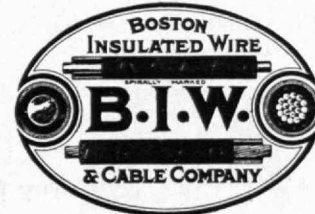


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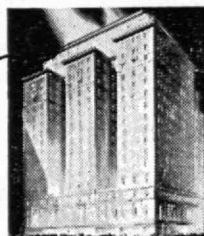


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Henry A. Buff '05

## THE INSTITUTE GAZETTE

(Continued from page 282)

His avocation was literature, in which field also he attained distinction — essays, poems, and plays giving proof of his versatility. On two occasions he was prize winner in the M.I.T. prize song contest. His interest in and devotion to the place of his birth are evident in two of his more important publications, a *History of Maryland* and *Maryland: Stories of Her People and of Her History*. Professor Passano was a member of the American Association for the Advancement of Science and of the Mathematical Association of America.

He is survived by his wife, Elizabeth Bissell Passano; a daughter, Mrs. John C. Cross of Laguna Beach, Calif.; and a son, Leonard M. Passano, Jr., '22, of New York City.

— RAYMOND D. DOUGLASS

## Rogers Awards

**W**ILLIAM BARTON ROGERS awards of \$300, which are given annually in memory of the founder and first President of the Institute in recognition of high scholarship, character, and leadership in student affairs, were presented to four members of this year's graduating Class.

The recipients were Frank E. Briber, Jr., Denver, Colo.; Clinton C. Kemp, Cambridge, Mass.; Robert W. Maxwell, Braintree, Mass.; and Kenneth R. Wadleigh, Clifton, N. J.

Presentation of the awards was made by President Compton in a special ceremony attended by the Faculty Committee on Undergraduate Scholarships, of which Dean H. E. Lobdell, '17, is chairman, and the Heads of the academic Departments in which the students were studying.

Briber, a graduate of East High School, Denver, Colo., was in the Department of Metallurgy. He was chairman of the undergraduate Budget Committee and

(Concluded on page 286)

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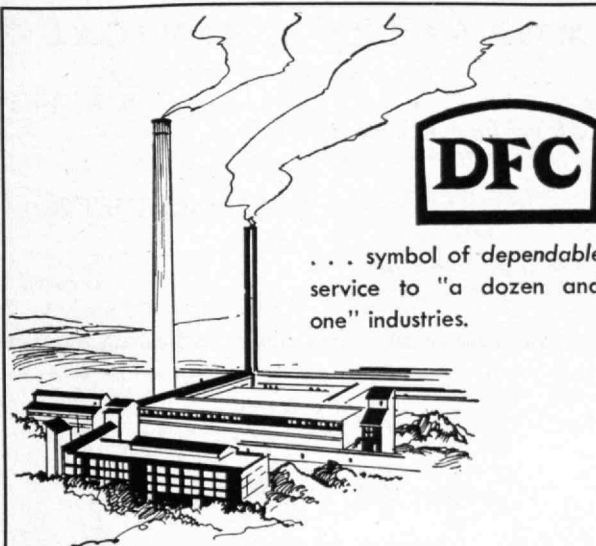
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## THE INSTITUTE GAZETTE

(Concluded from page 284)

a member of the executive committee of the Institute Committee. He had been a member of the Interfraternity Conference and had served on the staff of the *Tech Engineering News*. His sports activities included basketball and track.

Kemp prepared for M.I.T. at the Royal Grammar School in Guildford, England. He took the Chemical Engineering Course and was President of the Technology Christian Association. He was a member of the Institute Committee and is a member of the American Institute of Chemical Engineers, the Army Ordnance Association, and the Chemical Society. He is also a member of the Advanced Reserve Officers' Training Corps.

Maxwell, who took the Course in Naval Architecture and Marine Engineering, was chairman of the Walker Memorial Committee. He prepared for the Institute at Braintree High School. He was also a member of the Student-Faculty Committee and of the executive committee of the Institute Committee. He was a member of the Quadrangle Club and Tau Beta Pi and was a member of the M.I.T. Nautical Association for two years. He was also a member of the editorial board of *The Tech*.

Wadleigh, who was president of the M.I.T. Athletic Association, entered the Institute from Clifton High School. He was in the Course in Mechanical Engineering, in which he was a member of the Honors Group. He was also a member of the Institute Committee and of Scabbard and Blade, the honorary military society. He was a member of the American Society of Mechanical Engineers, having served as president of the student chapter in his third year. He is a member of the Advanced Reserve Officers' Training Corps and was manager of the track team during his junior year.

## THE TREND OF AFFAIRS

(Concluded from page 232)

### Magma

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*of the*  
**CLASS OF 1943**

(as of February 1, 1943)

EMPLOYMENT STATUS	NUMBER	PER CENT
Army . . . . .	98	28.9
Navy . . . . .	61	18.0
Marines . . . . .	3	.9
Applying Services. . . . .	7	2.1
Federal . . . . .	8	2.4
Industrial . . . . .	148	43.8
Further Study . . . . .	7	2.1
Unclassified . . . . .	6	1.8
TOTALS	338	100.0

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# TECHNOLOGY MEN IN ACTION

THE ALUMNI FUND — ITS PROBLEMS AND GROWTH

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## *The Real Institute*

I WANT to talk to you men of '43 about the Alumni Association. By the sheer act of graduation you automatically become members. This privilege accorded you gratuitously by the Alumni is their initial contribution to the continuing link between you and your alma mater. . . . Tonight we want you to have a good time and experience the joy and satisfaction it is to consort with other men who share with you a common background and who in voluntary association with you want to undertake in some way to repay in part the advantages which their years at M.I.T. have brought them. Our appreciation of these advantages grows with the years, and with this growth there comes the desire to shoulder some part of the responsibility for the perpetuation of the institution which rendered us so signal a service. . . . After all, this is only fair. Has anyone ever told you that your tuition and fees paid only about half the cost of your education here? It's a fact. Horace Ford will give you the exact figures if you are interested. The other half of the cost came from bequests and income from endowments. Other people have been so impressed with the value of the education you could receive here that they have contributed substantially to make it possible. In fact, they have contributed \$55,000,000 in all. Some of that has been spent for buildings, facilities, and other purposes connected with the growth and development of the Institute, but \$37,000,000 is still around invested in one thing or another, and the income from it paid the other half of the cost of your education and mine. . . . This money did not all come from Alumni, but a substantial amount of it did. The roster is impressive: George Eastman, the du Ponts, Charlie Hayden '90, Henry Clay Frick, Maria A. Evans, Alfred Sloan '95, Godfrey L. Cabot '81, Arthur D. Little '85, and many, many others. The many smaller gifts, anonymous by reference here tonight, may not be so notable intrinsically, but measured in terms of vision of the common good, sacrifice for the benefit of others, loyalty to the institution that educated them, and relative to the means at the disposal of their donors, this larger list may well contain the name of him who should properly head them all. . . . Perhaps the financial aspect of the Alumni-Institute relationship has already been overemphasized. Of course, sound finances are fundamental, but in a way they are like the plant — the buildings, lecture halls, laboratories, and the elaborate equipment of various sorts — necessary but utterly useless without people. The real Institute, the irreplaceable values which have been built up through the years, are the brilliant, well-balanced Faculty and staff, the eager, enthusiastic student body, and the solid loyal Alumni.

These are some of the remarks of B. Edwin Hutchinson '09, former President of the Alumni Association, at the Alumni Banquet on January 30. Addressed to the Class of 1943, they apply with equal strength to all of us. The Alumni Fund is the means through which Alumni help to maintain the sound financial foundation of "the real Institute."



# TECHNOLOGY MEN IN ACTION

## M.I.T. MEN AT WAR

Up to February 6 over 3,800 Institute alumni, including 14 Admirals and 39 Generals, were recorded as being in the active military or naval services of the United Nations, and nine had already been officially decorated. New additions this month include Brig. Gen. Franklin O. Carroll '21 and Brig. Gen. Grandison Gardner '28.

Additions and corrections to the listings which have previously appeared, beginning with the issue of November, 1942, will continue to be published in future issues of The Review. As a matter of convenience, promotions and corrections in the rank previously given are grouped under a single heading, "Changes in Rank." The Review Editors are greatly indebted to the many alumni and other readers who are continuing to co-operate so helpfully in reporting inevitable errors of omission and commission which they note in these listings.

### NEW DECORATIONS

- 1911 Kenney, George C., *Lt. Gen.*; Distinguished Service Cross — cited in an Order of the Day by General MacArthur "for extraordinary courage, marked efficiency and precise execution of operation during the Papuan Campaign." (Previously a Distinguished Service Cross was awarded to "George C. Kenney, First Lieutenant, Air Service, Pilot, 91st Aero Squadron. For extraordinary heroism in action near Jametz, France, October 9, 1918.")

### NEW LISTINGS

#### U.S.A.

- 1906 Patch, Ralph R., *Lt. Col.*  
1912 Roberts, Wilbur T., *Lt. Col.*  
1913 Van Deusen, Donald H., *Capt.*  
1916 Blakney, Raymond B., *Capt.*  
1917 Gardner, Paul, *Maj.*  
Wirt, Joseph B., *Capt.*  
1918 Biggar, Walter T., *Capt.*  
Giles, E. Palmer, *Maj.*  
1919 Bassett, William H., Jr., *Maj.*  
Grayson, Louis J., *Maj.*  
Howlett, Walter M., *Maj.*  
1920 Lipp, Morris N., *Capt.*  
Sullivan, Edmund C., *Lt. Col.*  
1921 Addicks, Allen D., *1st Lt.*  
Church, Walter E., *Maj.*  
Dellenbaugh, Frederick S., Jr., *Lt. Col.*  
Kendall, Jackson W., *Maj.*  
Lewis, Ralph R., *Pvt.*  
Regan, William J., *Maj.*  
1922 Pierce, Albert H., *Pvt.*  
Tait, Dudley, *Capt.*  
1923 Noble, Albert, *Capt.*  
Stewart, Alexander C., *Lt. Col.*  
1924 Feagin, Lawrence B., *Lt. Col.*  
1925 Davis, Ernest L., *Capt.*  
Gardiner, E. Willard, *S/Sgt.*  
1926 Barry, C. Humphreys, *S/Sgt.*  
Hill, Kenneth E., *Capt.*  
Warren, Elmer C., *Capt.*  
1927 Adams, John A., *Lt. Col.*  
de Lucica, E. Robert, *Maj.*  
McManus, Thomas K., *Capt.*  
Waugh, Sidney B., *1st Lt.*  
1928 Bearon, Max, *Lt.*  
Hardsog, Harry N., *Maj.*  
Moore, David P., *1st Lt.*  
Tobie, Walter C., *Capt.*  
1929 Alexieff, Theodore S., *Capt.*  
Hoffman, Richard T., *Lt.*  
1930 Hertzka, Wayne S., *Capt.*  
Holt, Frederick W., *1st Lt.*  
Houston, D. Tullis, *1st Lt.*  
Locklin, William H., *1st Lt.*  
1931 Kiniry, B. John  
McKenzie, Robert, *Capt.*  
Swift, W. Everett, *Capt.*  
1932 Kelton, John T., *Maj.*  
Scharnberg, Oliver H., *Capt.*  
Weston, Thomas, *Pvt.*  
1933 Kaplan, Jacob, *1st Lt.*  
Marshall, Courtenay D., *1st Lt.*  
Newhall, Donald H., *Capt.*  
Summer, I. Harry, *Corp.*  
Wheeler, Richard E., *2nd Lt.*  
1934 Spencer, John H., *Maj.*  
1935 Hecht, Morton, *1st Lt.*  
Hossfeld, John D., *Lt.*  
Olsen, Robert A., *Capt.*  
Shellenbarger, Marion W., *Lt.*  
1936 Chapman, Gerald L., *Capt.*  
Sheehan, John F., *Pvt.*  
1937 Rosen, Leo, *Capt.*  
1938 Chase, George F. M., *Pvt.*

- Downs, John A., *Capt.*  
Foss, Paul B., *Pvt.*  
Nolan, Walter H., *Corp.*  
Park, Robert H., *Lt.*  
Parish, Claude L., *1st Lt.*  
Preece, William H. S., *Pvt.*  
Stolper, Ernst G., *2nd Lt.*  
Strickland, Raymond E., Jr., *Maj.*  
White, L. Douglas, *Pvt.*  
1939 Jennings, Albert T., *Pvt.*  
Hamilton, C. Watson  
Leavitt, Minard A., *2nd Lt.*  
1940 Ackerson, Alfred N., *Cadet*  
Bailey, R. Spencer, *Lt.*  
Baral, Paul, *1st Lt.*  
Davis, Robert J., *1st Lt.*  
Ferullo, Harry A., *Pvt.*  
Francis, Warren C., *1st Lt.*  
Freedman, Hyman M., *Capt.*  
Hyde, John F., *1st Lt.*  
Johnson, Fred J., *Off. Cand.*  
Isaacs, Irving W., *Pvt.*  
Port, Frederick J., Jr., *1st Lt.*  
Schneller, George O., *Pvt.*  
Sherman, Nathan, *Cadet*  
1941 Aronsen, Carl N., *Cadet*  
Downing, Mason L., *Capt.*  
Harshorne, Pierre F., *1st Lt.*  
Planje, Theodore J. M., *2nd Lt.*  
Weinberger, Edward B., *Cadet*  
1942 Bendt, Philip J., *2nd Lt.*  
Bing-You, George S., *Cadet*  
Carbina, John V., *2nd Lt.*  
Covitt, Arthur L.  
Devine, William, Jr., *2nd Lt.*  
Leghorn, Kenneth M., *Capt.*  
McCORD, Claude M., Jr., *1st Lt.*

#### U.S.N.

- 1910 Ahlers, John G., *Lt. Comdr.*  
1916 Berrigan, Thomas A., *Lt. Comdr.*  
1920 Brown, C. Ellsworth, *Lt. Comdr.*  
1923 Getchell, Stanley S., *Lt.*  
Watt, Richard M., Jr., *Capt.*  
1924 Billard, Gordon Y., *Lt.*  
1925 Morash, Arthur E., *Comdr.*  
1926 Creedon, Herbert T., *Lt.*  
1927 Hemenway, Kenneth H., *Lt.*  
Shisko, Alexander G., *Lt.*  
1928 Griep, Elmer F., *Lt. Comdr.*  
Jones, George N., *Lt. (j.g.)*  
1929 Ballou, N. Vaughn, *Lt. Comdr.*  
Southernland, Louis F., Jr., *Lt.*  
1930 Walker, Francis S., *Lt.*  
1931 Tedford, James L., *Lt. (j.g.)*  
Smith, Clifton A., *Lt.*  
1932 Anderton, Earl F., *Lt.*  
Bang, Franz W.  
1933 Rubinstein, Bernard, *Lt. (j.g.)*  
1934 Feeley, Frank G., Jr., *Ens.*  
Gouchoe, Richard L., *Lt. (j.g.)*  
Lippitt, Kendrick H., *Lt. (j.g.)*  
McCallum, Angus  
1936 Shubart, Charles W., *Lt.*  
1937 Cardani, Charles P., *Lt. (j.g.)*  
1938 Comins, Malcolm, *Cadet*  
Minott, Albert W., *Ens.*  
Towner, William W., *Mid.*  
1939 Haible, William, *Ens.*  
Laurant, George J., *Lt. (j.g.)*  
1940 Janke, Noble W., *Ens.*  
1941 Anthony, Joseph G., *Lt. (j.g.)*  
Borrebach, Edwin J., *2/c P.O.*  
Corney, Chester A., Jr., *Ens.*  
1942 Trexel, Carl A., Jr., *Ens.*

#### U.S.C.G.

- 1902 Brown, Norman E., *Lt.*

#### U.S.M.C.

- 1923 Buhler, August A., *1st Lt.*

### CHANGES IN RANK

#### U.S.A.

- 1911 Ranger, Richard L., *Maj. to Lt. Col.*  
Van Tassel, Edward D., Jr., *Capt. to Maj.*  
1916 Wolfe, Walter J., *Lt. Col. to Col.*  
1920 Hall, Clyde K., *Lt. to Capt.*  
1921 Carroll, Franklin O., *Col. to Brig. Gen.*  
Hersum, Leroy M., *Lt. Col. to Col.*  
1922 Plimpton, John A., *Maj. to Lt. Col.*  
1924 Herrstrom, Charles E., *Maj. to Lt. Col.*  
1925 Watts, Newell E., *Maj. to Lt. Col.*  
1926 Jenkins, Harry J., *Capt. to Maj.*  
1927 Connor, Robert T., *Pvt. to Capt.*  
1928 Gardner, Grandison, *Maj. to Brig. Gen.*  
Scherer, Louis, Jr., *Maj. to Lt. Col.*  
1931 Dodge, John H., Jr., *Capt. to Maj.*  
Kohler, Otto C., *1st Lt. to Capt.*  
1932 Allee, Edward S., *Maj. to Lt. Col.*  
Breden, J. Paul, *Capt. to Lt. Col.*  
Hall, William P. G., *2nd Lt. to 1st Lt.*  
Hallahan, William J., *Capt. to Maj.*  
1933 Gerhard, Frederick W., Jr., *Lt. to Col.*  
Kidde, Gustave E., *Capt. to Maj.*  
MacMahon, Frank K., *Capt. to Maj.*  
Morrison, Leonard L., *Pvt. to 2nd Lt.*  
Neil, Donald R., *Maj. to Lt. Col.*  
Ritchie, Isaac H., *Capt. to Col.*  
Skog, Allan P., *1st Lt. to Capt.*  
Smith, Raymond W., *Capt. to Maj.*  
1934 Harman, John J., Jr., *1st Lt. to Capt.*  
Matthews, William S., Jr., *Pvt. to S/Sgt.*  
1935 Goodhart, Morris, *1st Lt. to Capt.*  
Thomas, Herbert C., *Capt. to Maj.*  
1936 Hickman, Richard E., *1st Lt. to Capt.*  
Klemka, Albert J., *1st Lt. to Capt.*  
McCulla, William L., *Maj. to Col.*  
1937 Arabian, Karekin G., *1st Lt. to Capt.*  
Finn, Albert V., *1st Lt. to Capt.*  
McNamee, William L., *Capt. to Lt. Col.*  
Swan, Harry C., *1st Lt. to Maj.*  
1938 Buffington, Francis S., *2nd Lt. to 1st Lt.*  
Gould, Arthur F., *1st Lt. to Capt.*  
Irvine, Michael M., *1st Lt. to Lt. Col.*  
Mansfield, Herbert W., *Capt. to Lt. Col.*  
Mehren, Bernard W., *Pvt. to Corp.*  
Roper, Willard, *1st Lt. to Capt.*  
Schlansker, Howard I., *1st Lt. to Capt.*  
Welling, Alvin, *1st Lt. to Lt. Col.*

- 1939 Monderer, B. Allen, *1st Lt. to Capt.*  
Ryan, John A., Jr., *Cadet to 2nd Lt.*  
Steele, Winthrop M., *1st Lt. to Capt.*  
1940 Arch, Arnold, *1st Lt. to Capt.*  
Campbell, James H., *Lt. to Capt.*  
Castle, Alfred E., *Cadet to 1st Lt.*  
Gerges, Richard D., *2nd Lt. to 1st Lt.*  
Maxwell, Alfred R., *Capt. to Col.*  
Michelson, Louis, *2nd Lt. to 1st Lt.*  
Seedlock, Robert F., *Capt. to Lt. Col.*  
Smith, Oliver K., *2nd Lt. to 1st Lt.*  
1941 Hixon, David L., *2nd Lt. to 1st Lt.*  
Howell, Wallace E., *1st Lt. to Capt.*  
Katz, Leonhard, *Pvt. to 2nd Lt.*  
Klein, Herbert D., *2nd Lt. to 1st Lt.*  
Richardson, Lyle Jr., *1st Lt. to Capt.*  
Samuels, Howard J., *1st Lt. to Capt.*  
1942 Baresel, Karl G., *2nd Lt. to 1st Lt.*  
Crockett, Allan A., *1st Lt. to Maj.*  
Jones, Jack J., *Cadet to 2nd Lt.*  
Quynn, Allen G., *2nd Lt. to 1st Lt.*  
Rips, Ervine M., *2nd Lt. to 1st Lt.*

#### U.S.N.

- 1922 Eckberg, Adrian E., *Lt. to Lt. Comdr.*  
1923 Christmas, Walter F., *Comdr. to Capt.*  
Noble, Albert, *Comdr. to Capt.*  
1936 Freedman, Stanley M., *Ens. to Lt. (j.g.)*  
Vessey, Alexander C., *Lt. to Lt. Comdr.*  
1937 Weese, Harry M., *Mid. to Ens.*  
1939 Steiner, Richard L., *Ens. to Lt. (j.g.)*  
1940 Thewlis, Alan M., *Ens. to Lt. (j.g.)*  
1941 Finney, Earl P., Jr., *Lt. to Lt. Comdr.*  
Hawkins, Franklin, *Ens. to Lt. (j.g.)*  
Thompson, Robert S., *Ens. to Lt. (j.g.)*  
1942 Connolly, Thomas F., *Lt. to Lt. Comdr.*  
Gibson, Scott K., *Lt. to Lt. Comdr.*

### RANK NOT PREVIOUSLY PUBLISHED

- 1942 Brach, Herbert, *Corp., U.S.A.*

### CASUALTIES

- 1928 †Petrie, Malcolm O., *Capt., U.S.A.; Philippines*  
† Reported Captured.

## NEWS FROM THE CLUBS AND CLASSES

## CLUB NOTES

*Southwestern Association  
of M.I.T.*

On Monday evening, December 28, the Association held its first meeting since October, 1940. During the past 18 months many Technology Alumni have moved into this district to work in war industries, and the Club felt that these new members should have an opportunity to meet the older members of our local group. In spite of a very severe sleet storm, about 32 Alumni and students were present, including E. Neil Helmers who received the regional scholarship award from this district, and James C. Irwin, III, who received a freshman award.

Our guests included Robert V. Aycock and David T. Beals of the civilian advisory committee of naval officer procurement. Mr. Aycock spoke briefly regarding the great need of the Navy for men with engineering training.

James C. Irwin, Jr., '18, our President for the past several years, appointed Harry L. Havens '09 and William L. McPherrin '14 to serve as a nominating committee to select new officers. They selected the following: Frederick H. Dierks '12, President; Mark C. Culbreath '30, Vice-president; and Reginald W. Bulkley '27, Secretary.

After the business meeting, a fine colored moving picture with sound accompaniment was shown. The picture was taken and presented by E. M. Barnard, who is the owner of one of the leading camera supply stores in Kansas City and an amateur photographer of the first order.

After the movie was shown, beer and sandwiches were served. Everyone had a good time, and the officers hope that the turnout for future meetings will be even better.

The Secretary would like to take this opportunity to extend a hearty invitation to all M.I.T. men in the services or war industries to get in touch with him when they happen to be sent to his district if he can be of service to them in any way. — REGINALD W. BULKLEY '27, *Secretary*, 840 Westover Road, Kansas City, Mo.

*Technology Club of New York*

While the war has reduced the number of formal gatherings and events, it has by no means lessened the daily activities around the Club. Small get-togethers, class luncheons, and course and professional dinners are constantly taking place. The restaurants and reading rooms are crowded, and the taproom is active at all hours. Men in the uniforms of all the services are guests of the Club almost every day.

On January 20, the Honorary Secretaries of the Alumni Association in this section held a luncheon meeting at the Club. B. Alden Thresher '20, Director of Admissions at the Institute, addressed the group. He outlined changes which the war program has made at Technology, particularly with respect to entering students.

More than 40 persons were present at the meeting of the American Society of Civil Engineers on January 21. H. E. Lobdell '17, Dean of Students at M.I.T., and Professor Thresher were among the speakers.

Under the sponsorship of Paul Wiswall, the Class of '09 held a dinner meeting at the Club on January 29. Approximately 15 members of the Class were present. — A dinner meeting of the Technical Association of the Pulp and Paper Industries was held on February 16.

With many Alumni, particularly from the younger classes, in the service, the rate of new memberships has fallen below the high levels of a year ago. The wide activities of the Club, however, continue to attract many new members. These new members include Arthur H. Turner '09, Arthur R. Knight '17, and Guido M. Garbarino '33. — WILLIAM D. NEUBERG '17, *Secretary*, 24 East 39th Street, New York, N.Y. CONSTANTINE S. DADAKIS '34, *Publicity Committee*, 644 Riverside Drive, New York, N.Y.

*M.I.T. Club  
of Western Pennsylvania*

The principal dinner meeting of the year is to be held early in March. The committee has not yet announced the name of the speaker, but they have promised a man of exceptional ability with a timely subject of particular interest to Alumni. Every effort is being made by the committee to provide a particularly pleasing program and dinner and to apprise all the members of the occasion. A record-breaking attendance is anticipated.

The Club has sustained a great loss in the death of Carl G. Koppitz '09 on January 6 at his home in Greensburg, Pa. He was a faithful attendant at our meetings and had a host of close friends among the members. — FRED W. WATERMAN, JR., '25, *Secretary*, Carnegie-Illinois Steel Corporation, 1304 Carnegie Building, Pittsburgh, Pa. GILBERT N. REED '23, *Membership Secretary*, Westinghouse Electric and Manufacturing Company, 1210 Union Bank Building, Pittsburgh, Pa.

*Technology Club of St. Louis*

The officers and directors of the Club held a meeting early in December to make plans for the meetings for 1943. We shall continue our quarterly dinner meetings

and shall have a number of outstanding speakers on engineering subjects and other topics of specific interest to the members. The many M.I.T. service men in this area are being invited to attend our meetings. A number of men from the Army, Navy, and Coast Guard have already joined us.

Our immediate past President, Joseph R. Mares '24, has moved to Cambridge to organize the patent department for the National Defense Research Committee. We have lost a very active member, and judging by the splendid job Joe did as patent attorney for the Monsanto Chemical Company here in St. Louis, the N.D.R.C. has gained a capable man. — ELLIS C. LITTMAN '33, *Secretary*, 2 Tuscany Park, Clayton, Mo.

*Washington Society of  
the M.I.T.*

The Washington Society held its combined November-December meeting on December 16 in Barker Hall of the Y.W.C.A., 17th and K Streets, Northwest. The date was changed because of the necessity of reserving the large hall for our expanding membership. President Mert Emerson '04 introduced the many men attending for the first time. Robert G. Caldwell, Dean of Humanities at the Institute and chairman of the Division of Cultural Relations among the American Republics, addressed us on "Latin American Affairs."

Dean Caldwell's talk was most interesting. He portrayed skillfully and accurately the difference in the Latin American situation in 1918 and today, recalling how in 1918 the Zimmerman intrigue in Mexico under Carranza made us quite uncomfortable. In those days, the countries of Latin America, with the exception of Brazil and Cuba, could be considered suspicious and halfhearted in their relations with us. Today even Argentina can be considered a real friend. Following a long series of bilateral agreements, that country was won over in October 1941 to an agreement giving us the most favored nation clause, a major diplomatic achievement. The signing of 18 of the 20 Latin American countries to the Mutual Defense Pact was one more indication of real solidarity. The settlement of the Peru-Ecuador boundary dispute, unsolved since 1822, and the amicable settlement of the Bolivian Standard Oil seizure, at one time considered impossible, are other demonstrations of how far we have progressed — in spite of daily full-page German paid propaganda in the Latin American newspapers in the period preceding Pearl Harbor. The degree of unanimity achieved at Rio, Caldwell feels, was due to the many telegrams demonstrating the popular demand in favor of the United States. — Another indication of the real change



in our relationship is the kind of books that are in popular circulation. In 1916, the books by Latins which were sold most widely were very much against the United States, while today the reverse is true. Dean Caldwell reminded us that Chile is as far away as Vladivostok, and Buenos Aires is about 6,000 miles from New York.

In 1916, Latin America considered its dangers North America, Germany, and Japan in that order, but today the feeling as expressed by the Mexican foreign minister is that an attack on the United States is an attack on all America.

Dean Caldwell had a large, enthusiastic and attentive audience. Following his talk, Proctor Dougherty '97 made a brief speech recalling the progress the Society has made in membership and interest over the years.

The following M.I.T. men and guests enjoyed the discussion and dinner: Edward M. Smith '88, George W. Stone '89, John G. Crane '90, James Swan '91, Barron P. DuBois '92, Ferd T. Schneider '92, George W. Stose '93, Joseph W. Clary '96, Proctor L. Dougherty '97, Frederick A. Hunnewell '97, Martin Boyle '98, Marcy L. Sperry '00, W. Lorrain Cook '03, Hewitt Crosby '03, Merton L. Emerson '04, Frank W. Milliken '04, George H. Shaw '04, George N. Wheat '04, Harry H. Bentley '08, Paul H. Heimer '08, Kenneth P. Armstrong '10, Carl G. Richmond '11, Raymond E. Wilson '12, Alfred E. Hanson '14, Aubrey D. Beidelman '15, David L. Patten '16, James P. Ferrall '17, Frank S. Rizzo '17 and guest, Hamat D. Manuelian '18, Aram G. Paul '18, Edgar R. Smith '19, George W. Anderson '20, Lawrence W. Conant '21, Kenneth Bernard '22, Rudolf H. Blatter '22, Harry H. Fisk '22, William K. MacMahon '22, Chester A. Moore '22, James R. Morton, Jr., '22, Robert K. Thulman '22, Jean M. Ashton '24, William V. Cash '24, George D. Fife '24, John E. Jackson '24, George E. Lamb '24, Perry C. Maynard '24, William W. Sturdy '24, Clarence B. Lober '25, Emerson W. Eddy '26, George W. Smith '26 and guest, Mary O. Soroka '26, George C. Pops '27, Kenneth E. Smith '27, Robert M. Tucker '27, Albert E. Beitzell '28, M. Waldo Keyes '28, George D. Mock '28, C. Brigham Allen, Jr., '29, John A. Plugge '29, Nicholas P. Stathis '29, Albert F. Bird '30, John A. Mathews '30, Frederick W. Turnbull '30, John F. Miller, Jr., '31, John M. Kimble, Jr., '32, Frederick M. Moss '32, C. Wallace Bohrer '33, Blake D. Mills '35, Stanley T. Johnson '36, Winthrop A. Stiles '36, Earl D. Fraser '37, George B. Hunter, Jr., '37, David P. Burleson '38, George J. Stansfield '38, Richard H. F. Stresau '38, Robert W. Arentson '39, Woodson W. Baldwin '39, Joseph J. Donovan '39, Robert J. Saunders '39, James A. Smith '39, Peter V. Colmar '40, Robert S. Harper '40, Frederick S. Magnusson '40, William G. Osmun '40, Paul A. Reynolds '40, Herman A. Affel, Jr., '41, Roger G. Blum '41, Joseph G. Gavin, Jr., '41, Robert L. Kellner '41, Harlan E. McClure '41 and guest, Howard W. Wade '41, Alwyne C. Jealous '42, John R. Kellam '42, Ralph D. Bennett, staff, and guests, B. Andrews,

H. Ashton, H. B. Rogers, and R. M. Stern. — M. WALDO KEYES '28, *Executive Secretary*, 6514 Brennon Lane, Chevy Chase, Md. WILLIAM K. MACMAHON '22, *Review Secretary*, Rosslyn Gas Company, 3240 Wilson Boulevard, Arlington, Va.

## CLASS NOTES

### 1877

The Class held its 66th anniversary reunion at the Hotel Statler, Boston, at 12:30 P.M., January 30. All 13 living members of the Class were invited to attend. Twelve answered the invitation, and those who did not attend sent greetings. This was a good showing of interest in class matters considering the youngest had passed his 86th birthday. Those present were Charles A. Clarke of Watertown, Mass., President; George W. Kittredge of Yonkers, N.Y., Secretary; William H. Beeching of Winthrop, Mass.; and Frank I. Sherman of Mansfield, Mass.

President Clarke's status is unique in that he has been out of Technology 66 years, is a member of the Class of '77, and is 88 years of age. He is quite proud of the Army "E" that he wears on the lapel of his coat and of the Army flag that flies over his Universal Boring Machine Company at Hudson, Mass. They were awarded in August of last year for excellence in performance and output of machine tools.

Gas rationing and snowfall prevented two of our members who frequently attend class gatherings from being present. Besides the various greetings from the absentees, the Secretary read several poems written by Frank T. Hopkins. He also read a letter from Hibbard's son, Lyman C. Hibbard '17 of Plainfield, N.J., telling some of the details of his father's last illness. — GEORGE W. KITTREDGE, *Secretary*, 592 North Broadway, Yonkers, N.Y.

### 1887

A card recently received from Arthur Nickels discloses the fact that he is enjoying life in Sarasota, Fla., where he is located at 124 West 9th Street for the duration (of the winter season.) — Bert Cushing writes: "What a joy just to be alive and well! It would sure be swell to have a class meeting today. How much we should enjoy seeing our old cronies! Here's to all of you, and may we see each other next summer."

Fred Kendall writes that he is in good condition and that the scar caused by his unfortunate accident when he caught his hand in the automobile door last June is hardly perceptible. Fred was present at the Alumni Banquet on January 30.

It was a pleasure to hear from Oscar Nutter, as we do not have the opportunity to see him very often nowadays. He wrote: "Your description of the Plymouth gathering was entertaining. I should probably have been there. I debated the subject for a long time, but the negative side finally won. I was quite busy at the time, and I am still busy. I spent 45 years in the textile business and then resigned, expecting to take matters easy. Soon, how-

ever, I helped to start a small business making hypodermic needles, thinking I would devote only a little time to it. The business grew slowly, but when the war started in Europe it increased rapidly, until now we have about all the government business we can handle.

"In these days of restrictions, we cannot do much except work or sit around the house, so I am very glad I have something which takes up my time and which enables me to make something the country needs for relieving suffering. Any news of the good old Class is always gladly received."

A recent letter from Dick Schmidt refers to the Secretary's mention in the January Review of the honors tendered him by the Illinois Society of Architects at the time of his retirement from the office of building commissioner of the city of Chicago. He says: "I hope the readers of The Review understand that while I have retired from public office, I am again active in my firm's work, which is of a variety of types and of large volume, certainly more interesting than the routine of a public servant." Dick is deeply interested in the outcome of the Coconut Grove disaster and especially in the cause of the deaths of so many of the victims. Comparing this affair with the Iroquois Theater fire, he says: "I believe it was the opinion of the doctors that the majority of deaths in the Iroquois Theater disaster in Chicago in 1903 were caused by toxic fumes, but no investigation was made by scientists to determine their origin. Two Technology scientists went to the Coconut Grove, and it is hoped that they will be given adequate funds to test every kind of material to determine which ones produce such gases."

Frank Shepard wrote a very interesting letter from Denver. He said: "I earnestly wish that I could have attended the 55th reunion at Plymouth last June, but distance and the duties of the present period prevented my coming. Many happy memories are associated with Plymouth, for during our student days I enjoyed several visits with the family of our classmate Henry F. Stoddard, who was a descendant of pioneer Governor Carver of Plymouth Plantation. The Stoddard home was only a few blocks from Plymouth Rock. It is a great disappointment that I did not find it possible to attend the alumni exercises and annual dinner scheduled for January 30, but I was with you in spirit."

"I am now associated with the Denver Equipment Company, having a part in the design of metallurgical plants for the recovery of the essential metals copper, lead, zinc, fluor spar, graphite, tungsten, and so on, which are greatly needed in this present emergency. My son David, '26, X, is now a technical attaché with the American Embassy in London. He was associated for several years with the Standard Oil Company of New Jersey, representing them in Paris for two years and in London for three. During this period he made trips to various countries of Europe and became familiar with the gasoline and oil requirements of that



1887 Continued

area. His wife and two children have a home in Scarsdale, N.Y. My younger son Richard, a graduate of Colorado University, is now an inspector at the large ordnance plant west of Denver. My daughter, Mrs. Jean Shepard Martin, is a secretary in the office of Chancellor Gates of Denver University. Mrs. Shepard is devoting herself to keeping the members of our family pepped up to their duties.

"Denver is filled with war activities, and the streets are rife with officers and soldiers passing north and south and east and west. Please give my best wishes and cordial regards to all the members of our Class." — NATHANIEL T. VERY, *Secretary*, 15 Dearborn Street, Salem, Mass.

## 1888

Frank M. Ladd, the biggest and best guard Technology ever had in the days when our football team won championships, writes from his home in Tulsa, Okla.: "I am recovering from an operation and expect to go back to work in the War Department, Tulsa division, where I have been for a year as an engineering aide. My grandson is a first lieutenant in the Air Corps. He is training fliers at Greenville, Miss. I have no ideas about the war, except to win it."

Arthur J. Conner, Exeter, N.H., a very successful manufacturer of papermaking machinery, says: "You must remember that I lived in Boston until I was 37 years old and had my own friends, so that I never was in intimate contact with many '88 men. Furthermore, I never really followed my profession but have been in commercial business for 40 years. So you will understand I can really help you very little."

"William A. Conant was a good friend of mine. He lived quite near where I did and went to public school the same time I did. He never seemed to care much for business, although he had several positions. His father was one of the owners of the old Boston baseball team of 50 years ago, and Will always had plenty of money. I think he never married, but he was quite a ladies' man. I also maintained a friendship with Merrell. He had six children, three of whom are living, and about ten grandchildren. He spends most of his time bowling on the green in Dunedin, Fla."

Theodore A. Foque, Wayzata, Minn., writes: "Ellis is fine, as usual, and I think he enjoys life. He spends most of his time with his daughters, either at Wellesley or Melvin Village, N.H. He closed his house in Melrose because of the oil shortage."

Frederick H. Safford, professor emeritus of the University of Pennsylvania, Philadelphia, Pa., writes: "It was a great pleasure to hear from you, as I have not heard from any '88 man, with one exception, since our wonderful reunion in 1938. Since Hamlet lives in my native city of Lawrence, Mass., I sometimes get cards from him. The only losses I know about are Du Pont and Stone. Du Pont and I were slightly acquainted, and Stone was in my Electrical Engineering section for three years and we were very friendly. In the springs of 1940 and 1941 we were in

Winter Park, Fla., and met often. I introduced myself to the widow and daughter of Professor Peter Schwamb. They are charming people and were much pleased by my great regard for the professor."

Benoist S. Redd, who is a mechanical engineer for the New Era Manufacturing Company, writes from New York City: "Yes, I am from the South. I was born in Natchez, Miss., on the banks of the Father of Waters. When I was about 11 years old, we went to Bordeaux, France, to live with my mother's widowed aunt, who was one of a group of the family who went abroad after the Civil War to live because they could not get used to the changed conditions in Natchez and New Orleans in 'these-here since days' (since the Civil War). We did not stay in France much over a year, however, as my mother's health was not good."

"When I was old enough, we went to Virginia again so I could go to Richmond College. After being graduated from there, I went to M.I.T., joining up with the Class of '88, as you know. I got into '88 by skipping the freshman year."

"I went to see Frank Dame '89 from time to time until his death. I also saw Charlie Stone quite often at his office. Since his death I have not seen any of our Class. I used to see Azel Ames '95 quite often, but he too died a few months ago."

"I have before me a photo of '88 'Mechanical,' taken on the back steps of the 'new building' on Newbury Street. I think it was in our senior year. I am on the top step, and you are beside me. (I think it is you.) I know that many of these faces have 'gone west.'"

John C. Runkle, Cambridge, Mass., our Alumni Council member, writes: "We are back in our old house in Cambridge this winter. I stole some 17 beds and other furniture from our Duxbury houses, bought innumerable Army blankets, sheets, towels, and so on, and am running what is legally known as a 'rooming house' for Army and Navy officers studying at Harvard. It keeps our noses pretty close to the grindstone, but we have a lot of fine fellows and are having a good time."

Franklin Henshaw died on December 6. A clipping from the New York *Herald Tribune* read as follows: "Franklin Henshaw, head of the Scarsdale Water Department for the last nineteen years, died . . . at his home, 56 Walworth Avenue. . . . Mr. Henshaw was born in Boston and was a graduate of the Massachusetts Institute of Technology. He served as a lieutenant in the Army Engineer Corps during the World War. Surviving are his wife, Mrs. Helen Rice Henshaw; a son, Edward Henshaw, and a sister, Mrs. Frank Farnham." — BERTRAND R. T. COLLINS, *Secretary*, 39 Wiggins Street, Princeton, N.J. SANFORD E. THOMPSON, *Assistant Secretary*, The Thompson and Lichtner Company, Inc., 620 Newbury Street, Boston, Mass.

## 1891

A letter from Jim Swan says that he is still on the job but is having serious difficulties with his eyes. His daughter is

living with him. He sent greetings to all. His letter paper was headed "U.S. Coast Guard, Headquarters, Washington, D.C."

We heard from the Alumni Office that Arthur Alley is now living at La Jolla, which is not far from National City, Calif., his former address. We are writing to have him tell us what has happened.

Ernest Tappan, who took a vacation trip west and saw some of our classmates, wrote: "Last summer I, who had never been further west than Chicago or taken more than a two weeks' vacation, really branched out. Leaving Boston on July 3, I went via Chicago to Salt Lake City. There I spent a day seeing the city and trying to swim in Great Salt Lake. Thence I journeyed to Bryce Canyon, where I spent two days. From there I went to Zion Canyon, after which I went on to Los Angeles and spent five days there. I saw Ernest Spaulding and his wife and had lunch with Bert Kimball. We were unable to get Charlie Garrison to join us. I also saw the daughter of Walter Patch '93, an old Roxbury man. I went swimming in the Pacific Ocean at Santa Monica and was driven around Hollywood, Santa Barbara, and so on. At a place called La Brea I saw some pitch pits, out of which have come remains of prehistoric animals."

"I took the daylight train up the coast to San Francisco, where I spent five days. I had a most pleasant visit with Ernest Hersam. He showed me the University of California, and after a luncheon at the faculty club he took me for a long drive through the country. Later we called on Will Leland and his wife. I then went up the coast and spent three days at Longview, Wash., with my married niece whom I had never seen. Then I spent three days with my brother, J. Edward Tappan, who is in the Masonic Home at Zenith, Wash. He had not seen me for 34 years and did not know me. I spent a day at Victoria and a day in Vancouver, B.C. In the latter place I spent most of my time with my cousin, Frederic Tappan '99. Thence I traveled back toward the East, spending a day each at Lake Louise, Banff, and in Montreal, where I had about an hour's chat with Harry Birks in his fine jewelry store."

In January, Walter Douglass wrote the following nice long letter to Gorham Dana: "We have had an unusual season so far in Daytona Beach, but ours has been the reverse of yours in the North. While you have had extreme cold, our season has been warmer than usual. I've worn a topcoat only three times to date. People have been going in for swims almost every day. I quit swimming in November, however, for I'm getting cautious now."

"I have been making strenuous efforts to get into something which will help make a quicker decision for the Allies. Every little helps, they say, and now I'm hoping to get a chance in the Navy yard at Charleston, S.C. There is a lot of red tape to go through before one gets the final appointment. So wish me good luck."

"Probably I told you my son Donald is in the Air Forces. He is at the air training

1891 Continued

school in Enid, Okla. He has been very busy with his interesting duties there. My daughter and family are in Washington, D.C. Mr. French is in the Engineers Office there, and their home in Sarasota has been rented for some time, as they will probably stay in Washington until the war is approaching its end.

"I was sorry to learn of the passing of Fred Blanchard and David Ambrose. Fred had been ill for some time, and I think Ambrose was a bit down the last time I saw him.

"You know, I get much pleasure from reading and looking through the pictures in our golden reunion book. Today I studied the graduation picture of our Class taken on the Rogers steps. I find I can place the names of the majority and am going to make an index and send it to you for corrections and additions. I imagine you have a diagram with the names indicated. To my surprise, I can't find myself. Am I there? Or am I not? The book was a fine publication and was the result of a lot of hard work by you and the boys who helped you on the committee, and I know it must be greatly appreciated by everyone. I wish I could have seen the collection of photographs you had for the boys at the New Ocean House. I'm sure there were some good laughs at the early days and the times we had."

We extend our sympathy to Channing Brown, whose wife died on August 20. She was in her 80th year and had been ill for some time. In a general letter to his church, Channing said: "I am carrying on all my activities, as I know she would wish me to do." Those of us who know Channing Brown would expect just that. — Steve Bowen has left for his winter holiday at Virginia Inn, Winter Park, Fla. Ambrose Walker will as usual spend the winter in his cottage at Winter Park. In January, Hanington wrote of his operations, hospital trip, and so on last fall. He added: "After months indoors, however, I am again on the job for at least half of each day. When we attain the age of 70, to get back any kind of pep is not easy. With all our troubles, we had a very nice Christmas and our friends were certainly good to us. I received a card from Leland in which he said his son has been transferred from Denver to New York, so that probably ends my visits with Leland here in Denver. I also had a nice letter from Tappan and a card from Dana. I saw the account in the January Review of the death of Bill Kales '92. I used to meet him in Detroit years ago when my wife's parents lived there, and I saw him at the time of our 50th reunion. He was a fine fellow.

"We had a good year here at the Colorado Museum despite the war activities. With two big airfields, a munitions factory, and a medical unit, we see uniforms everywhere. Our attendance this year was 780,460 as against 805,000 last year. That is not bad.

"My brother's son-in-law, Major Fred Orlando Ward, is in North Africa somewhere. Mrs. Ward had a cable from him a short time ago saying he was O. K. That was the first news she had had since he

landed. Remember me to any of our classmates you see."

The following changes in address have been received: Arthur H. Alley, 7944 Prospect Place, La Jolla, Calif.; Walter Douglass, 123 North Ridgewood Avenue, Daytona Beach, Fla.; and Sterling T. Dow, 197 Pine Street, Portland, Maine.

— HENRY A. FISKE, *Secretary*, Grinnell Company, Inc., 260 West Exchange Street, Providence, R.I.

## 1892

Notice of the sudden death of Robert R. Taylor on December 13 has come as a surprise. In our class news in the January Review was a note from him saying that he was much better after being released from the hospital several months ago. Taylor was the first colored graduate of M.I.T. The press notices from which I quote pay high tribute to this man whose life was well spent.

A letter to the *Cape-Fear Journal*, Wilmington, read as follows: "In the passing of Dr. Robert R. Taylor, an honored and highly regarded member of the colored race, both the white and Negro citizens lose one whose place will hardly be filled. Dr. Taylor was a man of fine character, strict integrity, progressive, of quiet and dignified mien, and one who held a fine sense of civic obligation and responsibility. It was a privilege of the leaders of the white race . . . to confer with Dr. Taylor on frequent occasions relative to questions and problems affecting community racial relations. He was always sane and sensible in his viewpoint and ever actuated by a spirit always to cement friendly and cordial relations between the races. Dr. Taylor's record as a designer of structures at Tuskegee Institute, and as an educational leader there gave him national recognition. . . ."

Tribute was paid to Dr. Taylor by the mayor of Wilmington in the statement that in his passing ". . . the city of Wilmington has lost one of its best citizens and of whose achievements all Wilmington may be proud." The governor of North Carolina stated: "I deeply regret to learn of the untimely death of . . . Dr. Robert R. Taylor who has capably served for a number of years as a member of the Board of Trustees of Fayetteville State Teachers College. Dr. Taylor lived a useful and constructive life. . . ."

To Tuskegee, Dr. Taylor gave 41 of the most productive years of his life. Booker T. Washington discovered him as a draftsman in a white firm in Cleveland, Ohio. Struck by his presence and splendid educational background as a graduate of M.I.T., Washington secured him to develop the industrial program at Tuskegee Institute. During his tenure he directed most of the permanent construction now in evidence. Dr. Taylor is memorialized on two continents, for it was he who planned the buildings and the program of industrial training at the Booker T. Washington Institute in Liberia. His services at Tuskegee as vice-president covered one of the most critical periods in its history, and his courage and wisdom helped greatly to see established in its

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sister institution, the Veterans Facility, another outstanding example of Negro achievement.

Upon the death of Dr. Taylor, the name of the New Brooklyn Homes, a housing development for Negro families of low income, was changed to the Robert R. Taylor Homes in honor of the memory of Dr. Taylor. This change was a significant and honest recognition of the contribution that he had made to many communities and to the nation during his lifetime. To the citizens of Wilmington it means more than an open expression of a man's contributions. According to an editorial in the *Cape-Fear Journal*: "It means a challenge to the Negro boys . . . to pattern their lives so as to approach as a limit, the useful and helpful life lived by the one who has been so recognized. . . . It is not too much to hope that from this Home will come many boys who will make a place in life which will justify their having lived in the atmosphere of one who has lived so nobly."

Notice has also been received of two other deaths. Philip M. Burbank, VI, died on January 10, and Daniel T. V. Huntoon died in Philadelphia on January 15.

Herbert R. Moody of Vienna, Va., wrote in to tell us of his inability to attend our get-together. He said: "I am a long way off, and transportation is poor. Mrs. Moody has broken her leg, and I am near her all the dreary days."

George F. Rowell wrote from Philadelphia that he was in Denver for several weeks last summer and saw Severance Burrage a number of times. "He is as full of pep as ever and was interested in hearing about our reunion last April." Rowell expected to see Severance soon again, as he was about to make another business trip to Denver. — CHARLES F. PARK, *Secretary*, Room 5-111, M.I.T., Cambridge, Mass.

## 1895

Your Secretary received a letter from Judson Dickerman telling of his trip to Rio de Janeiro, Brazil. It was an oasis in the desert of class news, and its message will be refreshing. Judson wrote: "This member of the Class has had an eventful year. I was in Mexico for nearly three months working on the oil expropriation settlement, and the last three months I was in Brazil making what amounts to a bird's-eye industrial survey of that country's resources to see what the United States may be able to do to help the economy industrially in Brazil.

"About a dozen men were picked for their particular experiences in lines of industrial endeavor, which promised to make each one able to point out better methods of operations or to suggest the acquisition of certain machinery possibly available and unused in the United States. They were also to lay out programs for new industries to fit into the equipment Brazil has. The program was planned while Brazil was at peace, as part of the good-neighbor policies. Before we got started, Brazil entered the war, putting a war-necessity angle on the project. We



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had men covering the textile, chemical engineering, metallurgical, transportation, power and fuel, shop practice, and economics lines, with Morris L. Cooke the leader and also the oldest man of the party, and I the next oldest. Aside from Mr. Cooke, as far as I know, none of the men have been outstanding in their lines, that is none have reached national importance, though doubtless all have had some valuable training and experience as technicians.

"The report of the mission was presented to President Roosevelt and other high officials shortly after our return to Washington. Nine weeks on the ground is pretty short to do anything more than hit the high spots in such a big country of greatly different qualifications and united primarily only by sea routes.

"I was disappointed by my first view of Rio Harbor and the city, but its beauty and striking peculiarities grew on me. I took airplane trips to São Paulo and Bela Horizonte. Practically all traveling in Brazil is done by plane, as the railroads are generally slow, crooked, and merely fan out like fingers on a hand to end 200 to 300 miles from the coast with very few interconnections. Shortage of imported coal has injured operations, for wood and high-ash native coal cannot sustain operations like good coal. Then, too, a great deal of the trackage is publicly owned, and the quality of management varies greatly.

"These people have been Latin- and European-minded for the entire 400 years of settlement. All the wealthy people were expected to spend long vacations in France, Portugal, Belgium, and Italy. If they wanted higher education, they were expected to get it in those countries. Art and culture of all kinds copy those nations; much of the machinery in shops, powerhouses, railroads, and gasworks has been imported from Europe. England got its share of the material business due to its shipping, but made little impression on the culture. Swiss, Polish, and German makes are common in textile, power, and metallurgy machinery. Of recent years, Japanese textile and powerhouse materials have been in evidence.

"Figures of industrial activities and consumption of basic commodities like coal, oil, electric power, and other things show per capita only one-fifth to one-tenth the same development as in the United States. Brazil now has many active industrialists who are branching out into industry, compelled by the shutting off of imports by the war. These people have plenty of brains and are fairly active and progressive in their own immediate self-interests. Education, of the white-collar variety, is still theoretical, classical, and mathematical. Our technical students would be amazed to see these Brazilians standing around and observing, while the actual work of adjusting machines is done by laborers and helpers. The result is that too many of the technically educated men have no firsthand experience. They think they know, but they don't! Such men get into public office frequently.

"My air trip back from Brazil was via the short route, directly across the interior instead of along the coast. It took three days to reach Miami. The passage was pleasant and not so hot and tedious as the southbound route. What a nuisance the customs and the intelligent services make for citizens re-entering the country! As we disembarked, a medical officer stuck a thermometer in each passenger's mouth, and we stood around, the few minutes required, like a lot of dummies. I remained in Miami for a day and then returned to Washington by train." Dickerman states that he marvels at his capacity to stand the pressure of such trips at his age. He hopes to dodge other assignments of this character in the future, if possible, for he longs for time to recuperate and be fit for the coming 50th reunion of the Class.

De Nise Burkhalter has left his place in Laurel, Sarasota County, Fla., and can be reached in Lone Tree, Iowa. Allan P. Brown is now located in Santa Barbara, Calif., as industrial commissioner, Allied Nations, Post Office Box 735. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

## 1896

So far no one has written to the Secretary to identify the person who is No. 236 on the class photograph in the class book. Can it be that everyone is stumped over the identity of that individual?

At the Alumni Banquet in the Hotel Statler on January 30, '96 had a good turnout, which included Fred Damon, Bob Davis, Jim Driscoll, Henry Grush, Will Hedge, Frank Hersey, P. B. Howard, Sam Hunt, Locke, Jim Melliush, Rockwell, Fred Rundlet, and Con Young. Henry Jackson was also there — at the '95 table.

The Secretary is now able to report that the winter proceeded according to the usual schedule, in that a long letter was received from Con Young. This letter recapitulated some of the high spots of Con's career in the refrigerating and insulating business and also dealt more specifically with recent events. Incidentally, his letter disclosed that he and Abby were responsible for introducing the well-known soda fountain sundae into England. Con and Abby returned from Bridgeport, Conn., on October 10 with Abby's heart practically back to normal. Fall weather on Cape Cod was delightful this year, and the flowers in the garden continued to bloom until a few days before December 1, when the first cold wave hit them. This winter on the Cape, Con has been relearning the value of long woolies as a precaution against the New England winter. His house is incorporated in the military-zone restrictions of the north and south shores of the Cape, being within the lesser limit of the water line. All the windows on the northwest side were weather stripped, and some doors and windows which were not needed in the winter were calked. Ingenious blackout curtains were prepared for the windows. These are most efficient in preventing even a single ray of

light from getting through, and at the same time they can be easily raised for the day and lowered for the night. The cost per curtain was between 50 and 80 cents, not including Abby's labor on the sewing machine, the thread for the hems, and Con's rather shaky mounting on a step-ladder. All in all, the winter with them is an active one, with more or less sociability, music, snow shoveling, ice chopping, daily walks to the post office and the general store, and not omitting the time taken by the little English cocker spaniel. Gasoline restrictions on pleasure driving prevent much use of the car. The limit is one run a week to Hyannis and one to South Yarmouth for food and other essential shopping — a grand total of not over 15 miles a week. For all that, Con reports that they are having a happy winter.

Commendatory expressions continue to arrive on the class book. M. S. Wilcox out in Sandusky, Ohio, says that, although he attended Technology only one year as a special student in Architecture, he is able to recall several classmates who were students with him. He is now retired. — Myron Pierce dropped everything in his law office when the mail containing the book arrived, and he spent an hour looking at it before he dragged himself back to business.

Jacobs up in Vermont reports the usual winter weather of that latitude. He was able to get down to New York for a few days during the Christmas vacation, but it rained all the time he was there. — Charlie Moat, who is also located in Burlington, Vt., has been doing considerable shoveling of coal this winter instead of sunning himself in Florida as has been the case during the past few years. Fortunately he had converted from oil to coal. The same is true of Jacobs.

The complete story regarding Henry Sears has now been unfolded. He retired from teaching in Providence in June, 1941. His daughter and her family had moved to Wichita four months previous, so that when Henry retired from teaching he and Mrs. Sears decided to move to Kansas. They first closed up their Providence house for the winter of 1941-1942 and spent most of the time in Wichita. Last July he was able to sell his Providence house and move all his worldly goods and possessions to Kansas for good. Not being attracted to a life of idleness, he offered his services to the Municipal University of Wichita, where his offer was eagerly accepted, and he has finished his first semester as a teacher of college algebra. He finds the work and the associations most agreeable. Last November he was able to obtain a fine little five-room cottage, which is most comfortable with a natural gas furnace. Their only problem is the servant question. The main attraction, of course, is the three grandchildren — Natalie, who is nearly seven, and the twin boys Kent and Page, who are nearly two and one-half years of age. It looks as if Sears is renewing his youth with his grandchildren.

From Bakenhus comes the note that Charlie Hyde has just retired after a three-

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year term as a member of the board of direction of the American Society of Civil Engineers. He received a complimentary vote for the work he did during his term. As this is a board representing a membership of nearly 20,000 engineers, it is of interest to note that the Class has been represented on this board since 1924. J. M. Howe was a member of this board for three years beginning 1924 and served as vice-president in 1930 and 1931. Charlie Paul was a member of the board for five years beginning 1924. Charlie Trout was a member for three years beginning 1934 and has been treasurer since 1941. The fifth member of the Class to serve on this board has just been elected; R. E. Bakenhus has started his term this year. Bakenhus, who has been vice-president of the American Institute of Consulting Engineers, was elected president on January 19.

Matrimonial events still continue to happen in Bob Fuller's family, the last announcement being the engagement of his daughter, Nancy Hope Fuller, to Private Dale C. Bosworth, United States Army, son of Mrs. Ethel C. Bosworth of Fort Washington, Long Island, N.Y.

The contribution of \$50 by the Class for M.I.T. athletics has been made for the year 1943 and has been gratefully acknowledged by Ralph T. Jope '28, Secretary of the Advisory Council on Athletics.

Recent changes of address are noted as follows: Edwin C. Cramer, Apartment 306, 773 North Prospect Avenue, Milwaukee, Wis.; William C. Haseltine, 4606 Davidson Drive, Chevy Chase, Md.; Mrs. F. W. Lee, care of New England Trust Company, Boston, Mass.; Eduardo E. Saldana, Ponce de Leon Avenue 260, Santurce, Puerto Rico; Frederick H. Walker, 1820 South Cecil Street, Philadelphia, Pa.

It is with great regret we report the passing of Charlie Nevin on January 10. Charlie's health had not been too good for a considerable period, and he was hospitalized for some time previous to his death. He was born in Detroit, Mich., on July 19, 1874, and married Mary Saltonstall on October 27, 1906, in New York City. They had one son, Kirkland S., who was born May 16, 1910 and died in 1927. Charlie's career was entirely in architecture. He was associated first with Allen and Collens in Boston and then with J. McA. Vance '91 in Pittsfield, Mass. Later he conducted his own architect's office in Boston for several years. He designed several stores in Boston and New York. During the first World War, he was assistant civil engineer in the War Department, seacoast defense, northern New England, construction division. He was also a very enthusiastic stamp collector, with a noted assortment of rare United States stamps. He was a member of the Collectors Club of New York and of the Boston City Club. The Class was represented at the services by Driscoll, Henry, Rockwell, and Locke. Charlie was a fellow who turned up at class gatherings and reunions, and he will be much missed. — CHARLES E. LOCKE, Secretary,

Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, Assistant Secretary, 24 Garden Street, Cambridge, Mass.

## 1897

Again has Death stepped in and taken from the Class one who was ever active in keeping up our organization. Arthur T. Hopkins, XI, of Wellfleet, Mass., died on December 19 at the age of 73. He leaves two daughters, two sisters, and a brother.

After graduation, Hopkins became assistant to Professor Harry W. Tyler, Secretary of the Faculty at the Institute. He held the position for two years. While assistant to Dr. Tyler, Hopkins became the first editor of *The Technology Review*. In 1899, he resigned his position at the Institute to become superintendent of the Boston Almshouse and Hospital on Long Island in Boston Harbor, a position that he held for 18 months. During his stay on the island, he brought about a much-needed reorganization of the city institutions, and his work there was notable for its efficiency.

In 1901, Hopkins went to Jamaica to carry on scientific work in connection with the water supply, a project which had occupied his attention at the time of a previous visit to the island. At one time he had served as secretary to President Baker of the Boston Fruit Company at Port Antonio, Jamaica. After returning to the United States, he held various positions in the rubber industry. He was successively assistant superintendent and later superintendent of the Boston Woven Hose and Rubber Company, factory manager of the Mechanical Rubber Company of Cleveland, Ohio, and manager of the service department of the United States Rubber Company at New Haven, Conn. Later he became a partner of the consulting engineering firm of Haven and Hopkins, and later he maintained an office in Boston as a management engineer. Since his retirement a few years back, he had lived in Wellfleet on Cape Cod. He was a member of the American Society of Mechanical Engineers, the Boston Engineers Club, the Engineers Club of New York, and the Sons of the American Revolution.

From his graduation, Arthur was always intensely interested in all matters concerning the Institute and the Class. At one time he held the position of secretary-treasurer of the Alumni Association. He served as a member of a number of alumni committees and was an alumni member of the Institute Visiting Committee on the Department of English and History. He was a member of the executive committee of the Class and was active in arranging for all class outings and reunions. His genial presence and spirit of good fellowship always contributed much to the pleasure of those occasions, and his absence from them in the future will be greatly regretted.

In looking over various papers and miscellaneous memorandums that were sent to your Secretary by John P. Ilsley, who had in turn received them from Mrs. Charles W. Bradlee after the death of her husband, we found a few post-card sized photographs taken at some one of the

class outings, time and place unknown. About 12 of these are in good condition. Twenty-four men are in the picture and the likenesses are excellent. Some of those in the group have passed on — four within the past two years. The Secretary can identify the men with but one or two exceptions. The group includes Wilfred Bancroft, Joseph Bancroft, Ilsley, Howland, Baker, Clark, Hopkins, Howes, Breed, Currier, Norris, Lawler, Daniell, Eames, Hubbard, Mansfield, Worcester, Bradlee, Buff, and Taylor. If any of the men listed above would like to have these photographs, the Secretary will be pleased to send them as long as they last. We get some idea of the time of the picture when we note that a number of the fellows are wearing plus fours.

In a recent issue of the *Washington Star* was a favorable notice of the "reverse order" dinner program of the Washington Society of the M.I.T. Proctor Dougherty was one of the champions of the affair. The diners sat down at 5:30 p.m. to a table devoid of food but otherwise all set. The speaking program was then carried out with the understanding that at 6:30 p.m. the speeches would be completed and dinner would be served. At 7:30 p.m. the evening was ended and those present were at liberty to go when and where they chose. A huge clock facing the speakers served to remind them of the flight of time, and no doubt the fact that they were hungry helped to keep their remarks within the allotted limit. This idea proved very popular and might well be adopted elsewhere.

Your Secretary recently had a letter from Edward A. Sumner asking for the address of one of the Class. In answering the letter, the Secretary asked Ted if he would send in some news of himself for the class notes column in *The Review*. This he very graciously did. Here is what he had to say about his activities in past years: "I retired from business some years ago but have kept quite busy since. After taking training in the Plattsburg Barracks in 1915-1916 and enlisting at Fort Sheridan in 1917, I got knocked out and fell down on World War I. In 1920, I went to Europe to study the economic situation. I had headquarters in Paris at the European subsidiary office of an American corporation of which I was a director. I got out of Europe the day before war was declared. While I was in Europe I became much interested in the American Library in Paris, Inc., for its educational value, particularly to youth, through setting up American book collections at universities and schools for the benefit of students of English. One of the principal functions of the Paris library was to send books on American thought and ideals anywhere through Europe. This established a reputation for the library as an outstanding American institution. At latest advices from Paris, the library continues to operate.

"After the armistice there will be a tremendous demand for American books throughout Europe, and we look forward to supplying this demand as far as financial support will permit. As stopgap presi-



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dent of the library, I am working with the board of trustees, the American Library Association, and responsible heads in Washington towards developing a sound plan of operations with a strong organization to carry on. The library was formed in 1920 as a memorial to our armed forces in the last war by the American Library Association, from whom we are getting continuing splendid support through Keyes DeW. Metcalf, director of the Harvard University Library and president of the A.L.A., and Milton E. Lord, director of the Boston Public Library, who is acting as chairman of our advisory committee and council." — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass.

## 1900

A card received from Harry Osgood postmarked Charlottesville, Va., gave us the information that he was on a short trip looking for an ideal winter climate.

We quote from the New York *Herald Tribune* of December 6: "Miss Estelle Bennett, daughter of Mrs. Edward Cushman Bennett, of Brooklyn and the late Judge Bennett of Bennington, Vt., was married yesterday to Mr. George Dessler Atwood of Brooklyn. . . . The bride was graduated in 1930 from Pratt Institute and has been with the home economics bureau of the Consolidated Edison Company. She is a descendant on her father's side of Mary Allerton, of the Mayflower.

"Mr. Atwood's first wife is dead. He is a graduate of Massachusetts Institute of Technology and a former president of the Brooklyn Club and the Queens Valley Golf Club. He is president of the Decorated Metal Manufacturing Company and a director of the Brooklyn Chamber of Commerce, Associated Industries and the New England Society. The couple left on a brief trip to the Poconos. They will live at 480 East Nineteenth Street, Brooklyn."

A couple of letters from Fred Everett, the popular highway commissioner of New Hampshire, gives us the idea that he is having his troubles like all the rest of us. He writes in part: "We are endeavoring to keep our roads maintained and open for winter traffic. Of course, with the cut in revenue because of the gasoline rationing and lack of tires, we are going to have a tight squeeze to have enough funds to maintain the present system. With careful planning, however, I guess we'll get by."

Charles E. Locke '96, Secretary of the Alumni Association, sent in the following two items of interest. F. C. Lincoln, professor of mining at the South Dakota State School of Mines, is head of a research council that has been organized at the school to undertake explanatory operations in search of deposits of beryllium ore. Dr. Lincoln will personally direct the explorations and studies.

Fred B. Wilder, Los Angeles mining engineer, is associated with the operations at the Cajalco tin mine in the Temescal district of Riverside County, Calif. This mine is being operated for the government by the Dodge Construction Company.

Allen, who is living at the Dodge Hotel in Washington and doing his bit in the power branch of the War Production Board, sends in the following clipping from the December 11 issue of the *Washington Post*: "George H. Mead, member of the War Labor Board, and Mrs. Mead yesterday received from Secretary Knox a Navy Cross awarded posthumously to their son, Lt. George H. Mead, jr., U. S. Marine Corps, for gallantry in action on Guadalcanal Island. The ceremony was held in the secretary's office with Assistant Secretary of the Navy Board and Lt. Gen. Thomas Holcomb, Marine Corps commandant, attending. Also present were Lieutenant Mead's brother, Lt. H. T. Mead, Army Air Corps, and his wife and sisters, Katharine and Marianna Mead. According to the citation accompanying the medal, Lt. Mead 'with courageous disregard for his own personal safety, proceeded alone into the depths of the jungle, searched out the hidden offender and shot him with a .45-calibre pistol. Although he lost his life in the daring accomplishment of this task, he enabled his platoon to resume and complete its mission without further loss of life.'

"Lt. Mead was born on August 3, 1917, at Dayton, Ohio, and was appointed a second lieutenant, Marine Corps Reserve, after completing an officer candidate course at Quantico on January 31, 1942. His parents live at the Hays-Adams House in Washington."

On receiving Allen's letter, the Secretary wrote to Mead to extend the sympathies of the Class on this sad occasion. A part of his reply follows: "Thank you so much for your very kind letter of sympathy written to me in Washington. I returned to Dayton, my home, for the Christmas holidays. I take this opportunity of wishing you the compliments of the season along with expressing the deep appreciation of Mrs. Mead and myself for your thoughtfulness and consideration in writing on behalf of the Class as well as yourself."

Christmas cards and notes were received from Allen, Howe, Patch, Crowell, Hart, Hapgood, Draper, and Wastcoat. Many thanks!

The following changes of address have been received: Harrington D. Learnard, 4 Morton Street, Andover, Mass.; Rev. Henry M. Brock, S.J., 14 Cobb Street, Boston, Mass.; Robert H. Clary, 1217 South Alvarado Street, Los Angeles, Calif.; Elbert G. Allen, Dodge Hotel, Washington, D.C.; Sullivan W. Jones, Chief Housing Branch, Construction Bureau, 54th Floor Empire State Building, New York, N.Y.; and B. Gould Macintire, Rural Free Delivery, Bush River, Aberdeen, Md. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

## 1901

We received the following newspaper clipping about our classmate Alexander Jeffords: "A. H. B. Jeffords, management engineer with the Trundle Engineering Company for the past several years, has been made a vice president, it was an-

nounced today by George T. Trundle, President of the company. He will take over various administrative duties in the Cleveland office, specializing on war production rules, regulations and requirements.

"A graduate in Mechanical Engineering from Massachusetts Institute of Technology, Mr. Jeffords has had a wide and various experience in industry. He was the Sales and Traffic Manager of the Consolidated Telephone Company of Pennsylvania when the opportunity came in 1915 — in the midst of World War 1 — to become an executive of the Carney's Point Plant of E. I. duPont de Nemours & Company, the largest explosive plant in the country at the time.

"Late in 1917, just ahead of the United States entry into the War, Mr. Jeffords became general manager of the Standard Aircraft Corporation, Elizabeth, N.J. This was then the largest aircraft plant in the world and engaged in the production of several types of military planes, including the Handley-Paige and de Havilland bombers and the manufacture of the J-1 training planes. With the end of the War many of the planes built by this company were revamped under Mr. Jeffords' direction to become the original ships with which the Air Mail was established. In 1920, Mr. Jeffords joined the Sherman Corporation, Engineers, as vice president in charge of operations. Four years later he came to the Trundle Engineering Company and has made Cleveland his home ever since."

Phil Moore has sent me two distinctively printed pages which he received as a member of the Newcomen Society. One paragraph reads as follows: "Franklin's influence endures in work within the fields of science and the mechanic arts carried forward, generation after generation, by the Franklin Institute of the State of Pennsylvania. Among its prized medal awards of recognition is the Vermilye Medal, established in 1936 by William Moorhead Vermilye of New York, to be given for outstanding achievement and contribution in industrial management. . . ."

In acknowledgment of our customary yearly contribution to the Alumni Athletic Fund, we have received the following letter from Ralph T. Jope '28, Secretary of the Advisory Council on Athletics: "The generous contribution of \$50 from the Class of 1901 to the Alumni Athletic Fund has been duly received. All of us on the council are extremely grateful to you and your classmates for the continuance of this annual contribution which is needed to carry on our work. Please express to your classmates the appreciation of myself and the other members of the council for your continued loyalty and assistance."

I have been notified by Philip Moore in Chicago and Nathaniel Patch in Buffalo of the death of Harry P. Parrock on January 27 in Buffalo. From information contained in their letters, and from other sources, the following information has been assembled. Harry Percy Parrock was born in England and came to this country

## 1910 Continued

when about three years of age. While an undergraduate, he was business manager of "Technique." His fraternity was Delta Upsilon. After being graduated from Course II, he returned to Youngstown, Ohio, where his parents lived, and worked in the Republic Steel Mill. During World War I, he was manager of the Lumen Bearing Company in Buffalo. After the war he did professional work, and after two years at the Draper Company plant in Hopedale, Mass., he moved to Boston and lived there until about 1935, when he went to San Francisco. For about two years prior to his death he was associated with the Buffalo Arms Corporation, Buffalo. He died from pneumonia after a short illness. Perk Parrock will be remembered by his friends as a bright and witty conversationalist and great company. They will also remember him for his love of music and his piano playing. He was married in 1912 and is survived by his wife, Mrs. Louise M. K. Parrock, and two married daughters. — GUY C. PETERSON, *Secretary*, 788 Riverside Drive, New York, N.Y. THEODORE H. TAFT, *Assistant Secretary*, Room 3-266, M.I.T., Cambridge, Mass.

## 1902

There have been many changes of address called to the Secretary's attention by the Alumni Office. Les Millar is now with the United States Maritime Commission, East Coast Region, 1015 Chestnut Street, Philadelphia; Jerome E. Steever remains in Chicago, but at 4917 Lake Park Avenue; Bob Edwards is now in Hempstead, N.Y., Apartment 19F, 299 Jackson Street; and Harry Pond can be addressed care of Mrs. Elizabeth P. Burdett, 1295 Demark Road, Plainfield, N.J. It would help the class notes if you would notify the Secretary of such changes, and, if it isn't a military secret, please give the reason for the change, any new line of business you are taking up, and so on.

Word has been received from the Caterpillar Tractor Company of the death of Paul Weeks on December 20. We quote the sketch of his life which was received from his concern, as it covers his activities very completely: "Paul Weeks, for many years associated with the Holt Manufacturing Company and Caterpillar Tractor Company, died at his home in Kenwood, Chevy Chase, Md. Upon completing his engineering training at the University of Nebraska and the Massachusetts Institute of Technology, Colonel Weeks entered the employ of the Baldwin Locomotive Company, traveling extensively in South America. Returning to this country, he made his home at Los Angeles, Calif., and took up copper mining activities in Arizona. Becoming interested in tractors, he designed and built a tractor, which, however, was not put into commercial production. In 1915, he was engaged by Pliny E. Holt to assist him in the engineering activities of the Holt Manufacturing Company, and Weeks later became chief engineer of the company.

"During World War I, he entered military service as an officer in the Ordnance Department and was assigned to engineer-

ing duties with the tank and tractor division at Aberdeen Proving Ground and Washington, D.C. He advanced to the rank of colonel. For some time after the war, the Ordnance Department directed that experimental and development work on self-propelled gun mounts be continued in the Holt Plant, and Colonel Weeks returned to California to direct activities in that connection. Upon completion of this work, he joined the Fageol Company at San Leandro, Calif., and shortly thereafter became service manager for its eastern affiliate, the American Car and Foundry Company, at Kent, Ohio.

"Late in the Twenties, Colonel Weeks came with the Caterpillar Tractor Company as general service manager, continuing in that capacity in Peoria until several years ago when he was transferred to the company's offices in Washington, D.C.

"Colonel Weeks, who was given a military funeral at Fort Myer Chapel, Arlington Cemetery, is survived by his wife Inez, two daughters, a son, and a granddaughter." — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston, Mass.

## 1903

Not many of our Class are in the armed services of the country. Only Alexander Ackerman and Walter Adams, each with the rank of colonel in the Army, are listed so far. Many of our classmates, however, are indirectly in the country's service. They hold advisory positions, act as consultants, and many are in local work of various kinds. For instance, Potter, who is dean of engineering at Purdue University, is chairman of the advisory committee on Engineering Science and Management War Training, and he is expert consultant to the Office of Education in connection with training problems at the college level. He is also executive director of the National Patent Planning Commission. — JACKSON, IV, is in the planning and technical division of the Massachusetts Committee on Public Safety. Back in December, the Boston branch of Bundles for America put on a show of works of art for the benefit of the enlisted personnel of the armed forces. Among those showing was Jackson, who, according to the *Boston Herald*, "entered a fascinating collection of small water color studies, some of Bermuda, some of Provincetown, but all, without exception, of singular charm and beauty."

The Review Office will be glad to forward letters to men of the Class in the service. According to government regulations, military and naval addresses cannot be published.

Notice will come to you if we decide to hold a celebration of our 40th anniversary during a week end when the weather is warmer. Meanwhile, if we can't get together for our 40th reunion, we shall look forward with confidence in the thought that when the time comes for our 50th, many of us will be able to enjoy it in comfort and security. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 441 Stuart Street, Boston, Mass.

## 1905

S. Atmore Caine, XIII, had quite a write-up in connection with his recent change of pastorates from Brighton, Mass., to Norristown, Pa. An article in the *Boston Globe* of November 17 read as follows: "A farewell testimonial was tendered to Rev. Sidney Atmore Caine of St. Margaret's Episcopal Church, Brighton, last evening in the parish hall by members of the church, with many friends of all creeds present to extend their best wishes. Rev. Mr. Caine resigned to become vicar of St. Augustine's Chapel in Norristown, Penn., which is part of St. John's parish, one of the oldest in Pennsylvania. He will assume his new duties November 29.

"A native of Louisville, Kentucky, Rev. Mr. Caine was graduated from the University of Louisville with the degree of bachelor of arts in naval architecture and took a post-graduate course at the Massachusetts Institute of Technology. He received his theological training at the General Theological Seminary in New York City and has been serving in the Episcopal ministry for 30 years. He came to St. Margaret's eight years ago. . . . We had learned previously that Sid had been very active in the civilian defense program in his community.

Joe Brown, II, has been smoked out either by the Secretary's appeal to his pride of family or by a threat to invent a scandal, for Joe writes: "In spite of my sympathy for the woes of a Class Secretary, expressed so ably in your letter of the 17th, you still would be without a reply if you had not mentioned the possibility of a grandson. Nothing of any moment has happened to me, but I do have a grandson — Alfred Anthony Snowball, II, who is six months old. His mother is my daughter Dorothy, and his father is Lieutenant (junior grade) A. A. Snowball, Naval Reserve, now on a PT boat in the South Pacific. His father has not yet seen him. . . . I am with the Barco Manufacturing Company in Chicago, formerly Railroad Supplies, now working 24 hours a day for the Army and Navy."

Howard M. Edmunds, VI, also emerges from obscurity, actuated by one of the same motives, although he fails to mention grandchildren. Howard says he would rather write his own biography than have me make one up. He terminated a 15-year term with the Crocker Wheeler Electric Company last August to go with R. Hoe and Company, ordinarily makers of newspaper printing presses, but now makers of "things which have to do with artillery." Howard reports the work very interesting and the hours long. At the start of the war, he offered his services to his old regiment in England, but, Howard says: "This war is for the young, not for the old duffers of the Class of '05. I got the usual polite note saying that my application was noted with thanks and 'will advise if we want you.'" Howard mentions meeting our old friend, Selskar Gunn '04, and finding him in good health. He also reminded me that Gunnie took



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part in the best Tech Show. He wonders if the old haunts "chapel and all that" are gone.

Through some recent business correspondence with Charlie Johnston, III, I learned that his daughter Marjorie was married in December to E. Gordon Rauls of Aberdeen, an officer with the Chemical Warfare Service, at present stationed at Edgewood Arsenal. Charlie admits he's the same old sixpence (accent not on the "old") and in good health except for an annual attack of hay fever and an occasional dose of the grippie.

Dave Bridges, VI, claims there's no skeleton in his closet, "because they live right down this way." (Dave lives in Baltimore.) His factory is working practically 100 per cent on war work, and his spare time is spent filling out government forms, priority papers, and so on. Whose isn't?

Hunting for news in the '05 drawer in my desk, I found deep down a real antique — a program and menu of our senior dinner at the Hotel Westminster on June 1, 1905. Remember it? We had roast tenderloin of beef with mushrooms and coffee. Think of that! Our guests were President Pritchett; Professors Barton, Winslow, Clifford, and Spofford; Bursar Rand; and Blackie. Len Bushnell, long since deceased, was toastmaster.

There are two more deaths to report. Nathaniel Atherton Richards, IV, died in Maplewood, N.J., on January 19, and Thomas M. Gunn, XIII, died at his home in Haddonfield, N.J., on January 18. The New York papers carried such complete obituaries that I am quoting from them in each case.

"Nathaniel Atherton Richards, president of Purdy & Henderson Associates, consulting engineers of 45 East Seventeenth Street, and chairman of the board of Purdy & Henderson Company, engineers and contractors of 570 Lexington Avenue, both in New York, died at his home, 27 North Crescent, after a long illness. He was fifty-nine years old. Mr. Richards, an expert in the windbracing of skyscrapers, was born in Weymouth, Mass. and graduated from M.I.T. in 1905. He joined the Purdy & Henderson Company soon after in Boston, and went to New York with the same company several years later. He became chief engineer of the company in 1916, vice-president in 1920, and was president from 1934 to 1940, when he became board chairman. He organized Purdy & Henderson Associates in 1934. Among buildings in which structural work was designed under Mr. Richards' direction were the Municipal Building, Union League Club, Metropolitan Life Insurance Company Tower, Bank of the Manhattan Company, Saks Fifth Avenue, and Lord & Taylor, all in Manhattan; Industrial Trust Company in Providence, and the Royal Bank of Canada, in Montreal. . . . Mr. Richards was a member of the American Society of Civil Engineers, American Concrete Institute, American Society for Testing Materials and the Structural Engineers Society of New York. Surviving are his wife, Mrs. Lucy Richards; two daughters,

Mrs. Howard S. Gardiner Jr. and Mrs. Kenneth B. Gair; two sisters, Mrs. Carl T. Humphreys and Mrs. Charlotte Sawyer, and four grandchildren."

"Thomas M. Gunn, Chief of the research and development laboratories of the Socony-Vacuum Oil Company, Inc. at Paulsboro, New Jersey, and superintendent of submarine construction for the Russian Government during the World War, died at his home here. . . .

"Mr. Gunn was employed by the Russian Government in 1914 because of his work as superintendent of the designing department of the Electric Boat Company at New London, Conn. in 1913 and 1914. He designed and superintended the construction of all Russian submarines until 1917. Mr. Gunn had been hired by the government of Czar Nicholas II, but he worked for a while after short-lived Kerensky government came into power.

"Mr. Gunn was born in Joliet, Ill. He held the degrees of bachelor of science and master of science in mechanical engineering from the University of Washington, and in 1905 was graduated from M.I.T. with the degree of bachelor of science in naval architecture. After a brief employment as an instrument man of the United States Geological Survey, he was an instructor at the University of Maine from 1905 to 1917. Mr. Gunn also taught courses in machine design, hydraulic machinery, thermodynamics, powerplant design and internal combustion theory at Columbia University until 1912, during which time he worked out the principles for patents later granted him in submarine and refrigerator design and construction. After his return from Russia, Mr. Gunn was made chief of the specification branch, technical section of the ship construction division of the United States Shipping Board. He served with the board until 1919, when he formed a sales engineering company in New York. He joined the Socony-Vacuum Company in 1921 as a lubrication engineer, specializing in refrigeration. Mr. Gunn wrote many articles for engineering magazines. He was a member of the American Society of Mechanical Engineers. Surviving are his wife, Mrs. Cora Gunn, and a son, Loren T. Gunn, of the Army Air Forces, and a sister, Mrs. Benjamin S. Winchester of Newtown, Conn. — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 137 Newbury Street, Boston, Mass.

## 1907

Between the inclusion in The Reviews of November, December, and January of all the information regarding men of our Class that I learned in connection with our reunion of last June, and the preparation and mailing in January to all the fellows whose names are on our mailing list a copy of the class directory, which gave correct addresses and occupations as far as I knew them as of late December, my supply of news for these notes is very meager.

During the forenoon of January 7, Phil Walker told me that his wife had heard

on the radio that Clarence Howe, our distinguished classmate, who is Minister of Munitions and Supply for Canada, was at the Phillips House of the Massachusetts General Hospital in Boston. Phil suggested that I telephone the hospital from our plant in Whitinsville to learn if Clarence was really there. I did so, and through the courtesy of the head nurse with whom I talked, I was able to get a message of greeting to Clarence and a return word of appreciation from him. Then by telephone I arranged with a Boston florist to send to Clarence at the hospital, with a card of greeting from the Class, a bouquet of flowers. Then I wrote letters to nine '07 men in Boston suggesting that they call at the hospital to see our classmate. Under date of January 10, Clarence wrote me the following letter from Ottawa: "Many thanks for the very fine flowers that were delivered at the hospital with a card from the Class of '07. I came back to Ottawa by plane and am feeling first-rate again. Lawrie Allen called at the hospital, and we had a good talk over old times."

February 1 was quite an '07 day at the Institute, with Howe giving the commencement address; Macomber chief marshal; Ed Moreland marshal of recipients of bachelors' degrees in engineering courses; and Ralph Hudson, as usual, chairman of the Committee on Commencement.

Through a letter received from John Thomas, I can supplement the comments made about him in the January Review by saying that he is twice a grandfather, his older daughter having a daughter now nearly three years old and a son born in October of 1942. — In mid-January I received a letter from Bob Albro written from Springfield, Vt., where he said he had been since early October of 1942 on a housing job for the Carilli Construction Company and the John Basile Company, Inc., of Boston, Mass., the concern for whom he is construction superintendent. This will make more complete Bob's business connection as given in the class directory. His permanent home address is still 377 St. James Avenue, Springfield, Mass.

In the Boston *Herald* of January 15 was a brief story telling of the engagement of a New York girl to Lieutenant James Brewster Hallett, United States Army, son of Mrs. Frank Mansfield Taylor of Boston and the late Lucius Felt Hallett of Denver, whom you will recognize as having been an '07 man. This young man was graduated from Harvard in 1937 and from Yale University School of Law in 1940 and recently from the infantry school at Fort Benning, Ga. The newspaper article states that he is a brother of the following: Genevieve Katherine Hallett; Lucius Felt Hallett, John Folsom Hallett, and Moses Deering Hallett — all lieutenants, junior grade, in the Naval Reserve; Robert Corbin Hallett of Pan American Airways; and Oliver Sawyer Hallett, a freshman at Yale University. — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. HAROLD S. WILSON, *Assistant Secretary*, Common-

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wealth Shoe and Leather Company, Whitman, Mass.

## 1908

The second dinner meeting of the Class for the 1942-1943 season was held at the University Club on Tuesday, January 12, at 6:30 P.M. Joe Wattles, Jeffs Beede, A. S. Cohen, Sam Hatch, Ted Joy, Steve Lyon, Harold Gurney, Myron Davis, and Nick Carter were present for dinner, and Hobe Ferris, a lieutenant commander, dropped in for a while after dinner to tell us a little about what he is doing. The number attending the meeting was less than usual because Cookie had to take his daughter back to college that night, Linc Mayo was out of the state in connection with his war work, Henry Sewell and Pop Gerrish were both in New York on business, and Lynn Goodman was laid up with an injured leg.

Following the dinner we had a short business meeting to discuss plans for the 35th reunion in June. A report from Linc Mayo, our Treasurer, was read. Up to January 9, he had received over \$100 for class dues from 24 members of the Class.

Harold Gurney showed the Kodachrome pictures which he took while he was on a trip through the Canadian Northwest and Pacific Coast area last fall. The pictures were very fine and were much appreciated.

The following letters, with checks for class dues attached, had been received by Linc and were read at the meeting. From 416 North Geyer Road, Kirkwood, Mo., Monroe Ames wrote: "I am afraid I shall not be at the class reunion next June unless the war is over. They told us last summer that V was for victory and not for vacation. We have worked every holiday but Christmas, and it's the first time I ever spent July 4 or Thanksgiving Day on the job. I am doing stress analysis for Curtiss-Wright. I was sent to Buffalo last year for eight months, but I didn't care much for the city. I hope to be back in Boston when the war is over, if there is any business in the structural line. . . ."

Harry P. Sweeny wrote from 4701 Connecticut Avenue, Northwest, Washington, D.C.: "For the past four years I have been senior technical adviser to the United States Bituminous Coal Consumers' Counsel, a government agency charged with the duty of protecting the interests of the bituminous-coal-consuming public. I hope that the reunion, if held, will be a success."

George Glover came through from Lima, Ohio, with this message: "Your idea about the 35th reunion is very good. Personally, I think we should have a reunion, but with no pep letters or follow-up letters to be used in connection with it. In other words, on those three days, June 18, 19, and 20, if any of us can arrange to be in Boston, we should do so and take advantage of seeing the fellows again. I hope very much to be there, although I am just like anybody else—I cannot make any dates more than 15 or 20 minutes in advance. I also feel that whether we have a reunion or not, you should take it upon yourself to get up a résumé of what has happened to the Class since the 30th reunion. Of course, I know you haven't

much to do—plenty of time hangs on your hands—so why not be a good class historian and give us all the late news? How would it be to send out a postal card or a form letter asking for information about each member? Then you could compile and send out the facts."

Mat Porosky of Moline, Ill., says: "I assume that your motive in sending out the Christmas notice dated December 5 and printed in red was to impress upon us the fact that the Class is in the red. I enclose herewith my check for class dues."

George C. Lees wrote from Pottstown, Pa.: "I wish that I might be with you sometime at one of our meetings, but that isn't practicable. If there is a 35th reunion, perhaps I could come, but it is not likely, with the war continuing and my work keeping me tied up in Pottstown or Washington. Please give my regards to the fellows."

A letter from Charles M. Steese said: "I was sorry to miss the meetings in Boston, and it looks as though the chances of my getting to Oyster Harbors are quite slim. Keep me on the list, however, as lightning does strike once in a while. I'm now a colonel on duty with the Munitions Assignments Board in Washington, D.C. . . . Regards to the bunch."

The following letter from George Bailey, who was formerly with the Casper Ranger Construction Company at Holyoke, will be of interest to the Class: "I am sending herewith a copy of the program of the ceremony on November 24 at which the award of the Army-Navy 'E' was made to the Wigton-Abbott Corporation and the Mahony-Troast Construction Company for outstanding performance in wartime construction in building the United States naval supply depot at Bayonne, N.J. This award was one of the first made to construction companies in the country and the first and only award of its kind to be made to date in the New York City and New Jersey districts." George was project manager on this contract.

Congratulations to Joe Wattles, who is our most recent grandfather. A son was born to his daughter, Mrs. Donald Forte, last Christmas Day. Here's hoping the boy will captain the Harvard football team some day, following in the steps of his father, who was Harvard's football captain in 1942.

We have the following new addresses to report: John C. Childs, 130 West Main Street, Strasburg, Pa.; Charles A. Gibbons, Jr., 4309 Southwestern Boulevard, Dallas, Texas; Carl E. Hollender, Federal Power Commission, 341 Ninth Avenue, New York, N.Y. Can anyone supply us with the correct address for James H. Davidson?

It is with regret that we report the death of William G. Logue in Boston on December 16. Father Logue was a widely known Jesuit priest and was a professor of physics and mathematics. He taught at Georgetown University, Brooklyn College, and Boston College, and was at one time vice-president of the last-named institution.

The third dinner meeting of the 1942-1943 season will be held at the University

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Club on Tuesday, March 16, at 6:30 P.M. The usual notices will be sent. Please make your plans to come. — H. LESTON CARTER, *Secretary*, 60 Batterymarch, Boston, Mass.

## 1909

Molly Scharff, a lieutenant colonel, who is one of our Assistant Secretaries, writes as follows from Washington: "We had a class luncheon at the Cosmos Club on January 7, and I am glad to report that all seven members of the Class (including myself) whose addresses I had were on hand. Attendance 100 per cent! I asked each one to write down his position and address, with any message he might like to send you. The result follows: Edward P. Chapman said that he is senior engineer of the traffic department of the Metals Reserve Company. Ted's address is 1 Scott Circle, Northwest, Washington. Bradley Dewey, a colonel, is deputy rubber director of the War Production Board. Brad's office is in the New Municipal Building. He says: 'My office is just over the jail. If I am not there, look below.'

"Robert E. Doane, an electrical engineer with the Anaconda Wire and Cable Company, has been loaned to the Bureau of Ships for work on design and procurement of electrical cables for the Navy shipbuilding program. Bob added: 'I have one son, Duncan, who is in the Army handling radio equipment. He was recently sent to an unannounced destination. My address is 3110 19th Street, Northwest.'

"Robert M. Keeney is chief of the nickel section of the steel division of the W.P.B. Bob's address is Room 1541, Temporary R Building. E. D. Merrill is president and general manager of the Capital Transit Company, 36th and M Streets, Northwest. John W. Nickerson is chief of the management consultant branch of the W.P.B. Nick's address is the Washington Hotel. He says: 'I work chiefly on labor relations and on the war production drive.'

"I believe I have already written that I am chief, P.R.P. section, priorities and allocations branch, resources and production division, Services of Supply. This means that I work for the Army on allocations of materials under the Production Requirements Plan and the Controlled Materials Plan. Our luncheon was a great success and we all agreed we'd try it again sometime. So please send me the promised list of '09 men in Washington, and I'll try to get in touch with the rest of them." — Just 36 years ago (where has the time gone?) Molly was in office as our first class president. In spite of his present heavy schedule in Washington, he still finds time to attend to class affairs.

Delos Haynes, VI, senior member of the firm of Haynes and Koenig, St. Louis, is a well-known patent attorney. Delos was our Class Secretary from 1907-1908. Your Review Secretary, who occasionally acts as a patent expert, sometimes meets Delos in the courts, although he and I have never been involved in the same suit. Delos writes: "Your recent letter came while I was in the East on my monthly



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trip to Boston and way stations. In fact, I was in Boston about the time you were writing the letter and was wondering how many of our young classmates of Course VI, including yourself, are donning uniforms.

"We had a delightful visit a few weeks ago in St. Louis with Salvador Altamirano and his wife and son, Horacio. They were en route from Minnesota to Mexico City, where their address will be Insurgentes 204 until some time in March. Then they will return to Buenos Aires, Argentina, where Alty's address will be the Mexican Embassy, Calle Arroyo 820, until further notice. He is commercial attaché of the embassy and doubtless has many a diplomatic knot to untie in the capital city of South American neutrality.

"Alty and I looked through the '09 pictures in an ancient 'Technique,' and we read the news in recent Technology Reviews. We are looking forward to our 35th class reunion. I know that Alty will be glad to see any classmates who happen to be in Mexico City or Buenos Aires while he is there."

Paul Wiswall has just heard from Leon Healy, V, who with Paul used to sweat and slave under Charlie Field '05 in the Organic Preparations Laboratory on the top floor of Walker. Paul was reminded of the following incident: "Healy and I were pegging away one fine spring afternoon when one of us (I've forgotten which one) got into a mishap. A retort blew up and some hot and concentrated  $H_2SO_4$  showered us. That was something! As I write this copy, what I have in my mind's eye as clearly as if it were a movie I'm looking at is poor Leon diving for the sink to get some cool water into action to wash off the acid! No paratrooper maneuvered more skillfully. He and not myself must have suffered the acid consequences. But no great harm came to either of us."

Leon has for many years had his own consulting engineering office in Milwaukee. He writes: "I do not often run across members of our Class in this neck of the woods, and I should be pleased to have any of the fellows drop in if they get out this way. My address is 2821 South Superior Street, Milwaukee, Wis.

"I wonder if Dale Ellis and Larry Forrest went cruising again this year in Dale's windjammer. You see, boating is my hobby. Tell them they ought to come out here and try their skill in our Mackinac Race, the classic of the Great Lakes, a 350-mile stretch from Chicago to Mackinac, Mich., as the crow flies.

"Our little yacht club has had its share in winning the race, having copped it four times within recent years. Over 40 per cent of our club members have gone into the Navy, so racing this year was confined in large measure to the juniors, and most of the races were with Stars, Nationals, and Gulls. I believe our Lake Michigan Yachting Association is now the largest in the country. We have over 1,700 member boats, of which over half are sail. Yours truly happens to be rear commodore this year, though why I don't know. The L.M.Y.A. has done an excellent job in connection with the Navy

League in training reserve naval officers and sponsoring a class in navigation. Practically all boats of 35 feet or over have been used in this work. The seamen have been taken out in all kinds of weather, and many of them have received their first experience with boats—getting the feel of the boat and applying some of their theory to practical small-boat navigation. My three children are my active crew now, so my wife and I are cook and engineer respectively. Let's hope the war will soon be over, so we can plan a reunion of the Class in 1944."

Paul has a cousin, Hope Wiswall, of Salem, Mass., who is a freshman at Radcliffe. The Review Secretary recently enlisted her services to assist him in entertaining the students at some "at homes." She thinks that Paul is tops, and he is rightly proud of his cousin, who is attractive, well poised, and good company.

A photo showing the personnel of the New England Products Corporation of Pottstown, Pa., with King Bullens, III, behind an Army-Navy "E" flag came to the attention of your Secretaries. We congratulated King and urged that he send us some more details. His reply, for which we are most grateful, is as follows: "I was mighty glad to hear from you. I don't often write about myself, but in this case you asked for it, so yours is the responsibility."

"My company, the New England Auto Products Corporation, of which I am president and principal stockholder, was one of the early birds to get into ordnance work. Most people in 1940 thought I was crazy, or a fool, or both, when I hocked everything I owned, or ever expected to own, to put in equipment to manufacture AA projectiles for the Navy. We eventually overcame what seemed insuperable difficulties, completed our contract three months ahead of schedule, and in December 1941 were awarded the Navy "E" and the Bureau of Ordnance flag. Only 40 awards had been made up to that time in the entire United States. On our second contract we knocked five months from our schedule and in July 1942 we were awarded the Army-Navy "E" with a star. We were the first in our section to win the Minuteman flag and the 10 per cent Treasury Bull's-eye, and we were likewise the first to go on a 24-hour, seven-day basis. As our commercial business disappeared, we took on other war business in universal joints, so that we now have our product in use in every type of ship afloat. . . . We have increased our plant and equipment through a Navy ordnance facilities contract. We are a small company, but we are trying to do our best to merit the awards bestowed upon us.

"My great disappointment is the fact that I'm not in uniform. As you may remember, I've been quite active in officer work in the Army Reserve for many years, both nationally in the Reserve Officers Association of the United States and in my own group as a lieutenant colonel and ranking reserve officer of the Philadelphia Ordnance District. In 1940, I had too much rank to be called to active

duty, but I did get word the night war was declared. Although my worries about war work, after I had nearly had a breakdown, have left me with a perfectly normal blood pressure, it also is one that could jump up under excitement. The medicos said no, so I've put my uniform in moth balls, and I'll stay home and praise the Lord and make the ammunition.

"Our daughter Peggy was graduated from Vassar in 1937, after having attained a three-way combination of having the maximum of week-end dates, being captain of the varsity fencing team in her junior year, and making Phi Beta Kappa. She was married in 1940 to Allen H. Keally, Michigan '33, of Merion Park, Pa., and they now have a daughter, Patricia. Our son Denny is 15, attends the Hill School, is primarily interested in athletics, and at present sees no good reason for trying to get honors in scholarship when a passing mark will get him through.

"May is busy as usual, with anti-aircraft or interceptor command work, A.I.C. in Philadelphia at least every third day, selling war bonds, hospital work, civilian defense training units, scrap drives, and so on. She says she has to make up for me not being in the Army. I personally may really have to do a little farming on the 'farm' this year in order to aid our food supply during the rationing ahead. I shall also have to go back to horseback riding and buggy riding as substitutes for gasoline travel and will cut wood to replace fuel oil. As a sign in my office says: 'The time has passed for tolerance, soft words, and consideration for feelings. We, the people, are at war.' Our best regards to all. And don't forget to reserve a place for me at the 35-year reunion poker game."

Congratulations on your accomplishments, King. Your last sentence is a reminder that the 35th is fast approaching. The class officers have already begun to canvass class sentiment on the subject of the reunion and hope that classmates will send in their thoughts and suggestions. — PAUL M. WISWALL, *Secretary*, 90 Hillside Avenue, Glen Ridge, N.J. CHESTER L. DAWES, *Review Secretary*, Pierce Hall, Harvard University, Cambridge, Mass. *Assistant Secretaries*: MAURICE R. SCHARFF, 235 Second Street, Southeast, Washington, D.C.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

## 1911

Tragedy again stalks 1911! A short Associated Press dispatch in mid-January ran as follows: "James B. Pierce, Jr., 52, prominent chemical manufacturing company executive of Charleston, W. Va., missing . . . on a flight from Washington to Charleston, was found dead in his wrecked plane . . . in an isolated mountain near . . . [Richwood, W. Va.]"

Our Jim, President of Barium Reduction Company, was with us at our 30-year reunion at Plymouth in 1941. He flew up in his Beechcraft. He was his same energetic and enthusiastic self, and he, Charlie Hobson, and Cleon Johnson — the chemi-

1911 Continued

cal "Three Musketeers" — were inseparable.

Cleon thoughtfully sent me a detailed story, which revealed that the finding of the plane and Jim's body ended a four-day search by Civil Air Patrol planes, police, and volunteers. "Mr. Pierce was a pioneer," it was said, "of the great Kanawha Valley chemical industry and was credited with putting into operation the first chemical plant in the area. He also headed the Barium Mining Corporation at Sweetwater, Tenn., and Gretna, Va. He attained national recognition through publication of technical papers in trade journals. A native of Sharpsville, Pa., he was president of a bank there. Mr. Pierce went to Charleston in 1914. His widow, three children and a sister survive." — Our sympathy has been expressed to the bereaved family, and all of us feel we have lost one of our finest classmates.

In mid-January, your Secretary, granted a leave of absence by the Worcester Chamber of Commerce, became a special representative for the George S. May Company, industrial engineers, of New York and Chicago. Already it seems great to be back in industrial lines — to marvel at the advances made in the past two decades. My territory comprises central and western Massachusetts, with parts of New Hampshire and Vermont, so the family and I still maintain our residence here in Worcester at 82 Elm Street.

Also in mid-January, I had a fine letter from Gordon Glazier, VII, Vice-president of the Hollingsworth and Whitney Company, paper manufacturers, with offices at 60 Batterymarch Street, Boston. Gordon, George Kenney, and yours truly, you know, were founders of the Technology Press Association, through which we handled Tech news for the Boston papers during our early undergraduate days. Glazier and Kenney were buddies at Brookline High in the class of 1907.

Under separate cover Glazier sent me, with his compliments, a book entitled *The Fight for Air Power* by William Bradford Huie. This book presents with authenticity the facts behind the unending efforts of the persistent and patriotic disciples of the late Billy Mitchell to perfect our air forces. One of the greatest of these disciples was our own George C. Kenney, a lieutenant general, who is making such a name for himself in command of the United Nations air forces in the Southwest Pacific. I commend the book to your reading, dedicated as it is "to America's Air Generals; to a score of men grown gray in the long battle to make this nation powerful in the air; to the partisans of Billy Mitchell, who kept the faith in the fight against blind obstructionism; to a group of officers who are our principal hope in America's hour of crisis."

Of course you saw the cover of *Time* for January 18 with Ernest Baker's effective sketch of our own rugged, bronzed General Kenney, I, captioned: "Kenney: Air Commander of the Southwest — his bombers must fly up a long ladder." If you missed it, hunt for a copy at once. Then turn to pages 27 to 29 and read

"For the Honor of God," describing Kenney's remarkable career and featuring a *Time* map titled "Kenney's Targets." Read how Australian and American troops, half-naked, greeted "one of their favorite brass hats — George Churchill Kenney, Commanding General of Allied Air Forces, Southwest Pacific Area and Commander, Fifth U. S. Air Force"; how for 25 years he carried in his fob pocket a small pair of wooden dice — "the oracle he invariably consults before embarking on momentous projects"; how in five months in the Southwest Pacific "the man chiefly responsible for these successes has yet to have a day off, or even want one"; how in France in 1940 (as he told us at our reunion in 1941 at Plymouth) he riled other military observers by recommending that the United States throw its air force in the ash can; how he was the first man to fix machine guns in the wing of a plane — this as far back as 1922; how the "cocky, enthusiastic little man can inspire his flyers with his own skill for improvisation." Small wonder General MacArthur said just after New Year's: "He is unquestionably one of the best qualified air officers in the world today."

Early in January, the Boston *Herald* printed a picture of a salvage group, brought up on the right flank by Burleigh Cheney, II, regional salvage manager for the War Production Board. The group was displaying a collection of old armor presented by Boston's famous Ancient and Honorable Artillery Company. The story stated that Burleigh expressed his gratitude to the organization and said the gift — aggregating more than a ton — would stimulate the collection of vitally needed scrap. Acknowledging a lag in collections during the last of December and early January, he added: "Steel mills have only enough to carry them through March. They face a shutdown in the spring unless they receive more scrap in sufficient quantities. There is just as desperate need for rubber, tin, kitchen fats, and other essentials — even typewriters, which the government is buying for the Army and Navy."

Ban Hill, I, President of the Baltimore Transit Company, sent an interesting clipping from the Baltimore evening *Sun* recording the passing of the city's oldest bus route (Charles Street) just before New Year's, requiring its passengers to use parallel streetcar lines — a definite trend, Ban believes.

Add 1911 service data: Harold Lord, II, is a major in the Corps of Engineers and is stationed at Columbus Engineers Depot, Columbus, Ohio. Aleck Yereance, also a major in the Engineers, reports from headquarters, Services of Supply, War Department, that his promotion last November "brought a welcome note in the symphony of steady work but made no difference in duties."

With one big son already an ensign in the United States Naval Reserve operating as commander of a patrol plane at San Juan, Puerto Rico, and with a son-in-law in Army aviation awaiting call to active duty, the Denisons of Worcester now proudly announce that their younger son,

George Wheaton, who turned 18 in October, enlisted in the Navy in mid-January and will report for active duty at once. He hopes to qualify for ground school training as a mechanic. His enlistment came on the eve of his return to Worcester Academy for the last half of the current school year.

Stanley Bates, I, has moved the offices of his Tractor and Equipment Company in Chicago to 3515 West 51st Street. Fred Daniels, VI, was re-elected vice-president of the Worcester Chamber of Commerce at the organization's annual meeting in mid-January. When Belding Heminway Corticelli, the nation's oldest thread-making firm, received the Army-Navy "E" at its Putnam, Conn., mills on January 10, our own Monk deFlorez, a Navy commander, presented the emblems to employees.

Charlie Locke '96, Alumni Secretary, reported as follows: "Jim Greenan, III, is operating a tin property in northwestern Nevada at what was formerly known as the Majuba Hill mine, now renamed the Greenan-Kerr. Reported rich tin ore in this vicinity was recently discovered. (See 1911 notes in the January Review.) Jim has said that the ore now ready for shipment contains more metallic tin than the total produced heretofore in the United States."

"One of the items on the program for the annual American Institute of Mining and Metallurgical Engineers banquet in New York City on February 16 is the Robert W. Hunt Award for 1943 to Marcus A. Grossmann, III, director of research of the Carnegie-Illinois Steel Corporation, for his paper entitled, 'Hardenability Calculated from Chemical Composition.'" Congratulations, Aurora Borealis.

In a recent newsy letter, one of many such received annually from this classmate, O. W. Stewart, I, told of an article in the Boston Sunday *Herald* concerning Roy MacPherson, II, a lieutenant commander, and his work in charge of Coast Guard activities off New England. (See the '11 notes in the January Review.) He added: "Have you heard that Ralph Runels, I, of Lowell fame has acquired a new family? You may recall the sudden passing of the first Mrs. Runels about two years ago, leaving Ralph and his son alone. The new Mrs. Runels has brought four daughters into the family, I understand."

Here are a few address changes: Fred Covill, II, from Old Town, Maine, to 294 South Main Street, Brewer, Maine; Gardner George, I, to 193 Homestead Avenue, Albany, N.Y.; George Watson, IV, from Houston to Box 253, Hughes Springs, Texas; and Clarence A. Woodruff, X, from Westfield, N.J., to 67 Mount Vernon Street, Boston.

Thought for today: "With notes like these, we try to please; but you don't get so many unless you 'Write to Dennie.'" Please note your Secretary's new mailing address. — ORVILLE B. DENISON, Secretary, 82 Elm Street, Worcester, Mass. JOHN A. HERLIHY, Assistant Secretary, 588 Riverside Avenue, Medford, Mass.



## 1913

From the replies to our reunion notices, we received the following information. Bill Herbert, IV, is with the Army Engineers, Port Townsend, Wash. His sons, Bob at M.I.T. and Frank at Stanford University, are both headed for the Navy. Millard W. Merrill, XIV, is busy chasing priorities through the Production Requirements Plan, thence to the Controlled Materials Plan, to secure materials for copper mines and smelters in production in the United States, Cuba, Mexico, and South Africa. In spare moments he serves as vice-president of the Purchasing Agents Association of New York.

Henry O. Glidden, IV, is at East Hartford with the Turner Construction Company, working on buildings for Pratt and Whitney Aircraft. His address is Box 346, East Hartford, Conn. — Malcolm Lewis, VII, writes: "Too old for the Army, I'm at Marietta, Ga., helping Bell Aircraft build B-29's. I work from 7:30 A.M. to 6:00 P.M., mold loft, and I am an air raid warden at night, so there wasn't a chance of my getting to Boston." Excuse accepted, Malcolm, better luck next time.

C. E. Pearce, II, a professor at Kansas State College of Agriculture and Applied Science, Manhattan, Kansas, writes: "Boston is too far away, and I had to keep my Civilian Pilot Training Program men flying. I also have my regular college duties and perhaps shall have more special war training duties. Give my regards to all, especially to Rand, Townsend, and yourself."

From Picayune, Miss., Mayo Tolman, XI, writes: "Having become a lover of the Deep South and having been here long enough to become properly acclimated, I couldn't picture myself going to a region of below-zero weather and a shortage of fuel when we were dining on our porch and eating fresh vegetables from our own garden. You boys in the North have my sympathy."

W. A. Bryant, I, wrote: "I've been helping to construct the Holston Ordnance Works in Kingsport, Tenn., with Charles T. Main, Inc., since last July. We won't be out of here for nearly a year more. I am area engineer in charge of construction of one section of work."

E. Gordon Taylor, XIV, sent regards from Miami. Karl Briel, I, a major, wrote: "To come 2,800 miles was just a little too far. I am at Fort Bliss, Texas. I had already begun looking forward to the reunion five years ago." — Marion Rice Hart, X, couldn't come to Boston because of "too much cold, too long time, too much priorities."

The following new addresses have been received: W. DeY. Kay, VI, Treasurer, Lane Cotton Mills Company, New Orleans, La.; Lieutenant Commander P. C. Warner, IV, Commanding Officer, Naval Air Station, Cape May, N.J.; Major Walter E. Merrill, XI, 1175 Biarritz Drive, Miami Beach, Fla.; and Earl E. Gagnon, II, Birmingham, Ala. — FREDERICK D. MURDOCK, Secretary, Murdock Webbing Company, Box 784, Pawtucket, R.I.

## 1914

The graduation on February 1 was of particular interest to classmates because the list of graduates included several sons of '14 men. Some of the boys are taking a co-operative course, and although they were listed in this year's graduating Class, they may not actually receive their degree for another year, when it will be awarded simultaneously with an advanced degree. The following classmates had sons in this year's senior Class: Crocker, Leigh S. Hall, Hoyt, Muzzey, Spitz, and Wheeler (deceased). One particularly interesting item about this group is it includes three sons who are the second in the family to be graduated. These are the boys of Leigh Hall, Cliff Muzzey, and Walter Eberhard. Hall established the class record of having the first son of a '14 man graduated, but Louis Wilson beat him by being the first to have two sons graduated. He had a son in the Class of '40 and another in the Class of '42. Leigh Hall's son was the captain of the track team.

Crocker and Hoyt had two sons at the Institute this year. The Class of '46 includes five sons of Classmates. The fathers are Bates, Crocker, Hoyt, Marsh, and Winninghoff.

George Whitwell, in addition to being vice-president in charge of sales of the Philadelphia Electric Company, has become president of the recently merged Chamber of Commerce and Board of Trade in Philadelphia. That organization can be assured of success as long as George is at the helm, because when George goes after anything, he certainly puts all his energy into it.

Crocker has made the newspaper headlines again by developing synthetic spices. A representative of the D. and L. Slade Company heard Crocker deliver a lecture before a group of food technologists on the subject of flavors. As the result of this, the Slade Company asked Arthur D. Little, Inc., with which organization Crocker is associated, to undertake the development of synthetic spices, cinnamon in particular. Crocker solved the problem, and synthetic cinnamon is now an article of commerce.

Walter G. Hauser has moved to Bridgeport, Conn., where he is associated with the Navy plant of the Bridgeport Brass Company. Clarke Atwood is busily engaged on work associated with the synthetic-rubber program. This is pretty much a 24-hour-a-day job, but he recently took time off for the wedding of his daughter Bonnie who was married to Robert Ralph Ferens. — H. B. RICHMOND, Secretary, General Radio Company, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, Assistant Secretary, 1775 Broadway, New York, N.Y.

## 1915

Nice going, classmates, on your support of the Alumni Fund! As of January 16, our contributors totaled 146. This is 83 per cent of our quota. They have given \$2,540.50, or 86 per cent of our money quota — an average of \$17.40 per man. Many thanks to you all.

Here's news for you! Pirate Red Rooney is in Washington working for the War Production Board on the construction of synthetic-rubber plants. He lives at 113 First Street, Northeast, and certainly would welcome seeing any of you fellows who are in Washington. He writes: "Lloyd Chellman has been down here for quite a while in the same office and has been grand to me — helping me to find my way out of the wilderness and telling all the gang here what a pirate I really am." — Can you just see old Pirate showing them how to put affairs in Washington on a good paying basis? Good luck to George down there; we all miss him up here.

From somewhere in Virginia, Jim Tobey writes: "You can say in your interesting column that you heard from Jim Tobey, a colonel in the Army, and that he sent best greetings to everyone. My address is Monticello Hotel, Charlottesville, Va." Good luck to Jim!

Phil Alger, on the general standardizing committee of the General Electric Company, Schenectady, N.Y., says: "Besides my work as chairman of the general standardizing committee of the General Electric Company, I am chairman of the technical program committee of the American Institute of Electrical Engineers and chairman of the naval motor development committee appointed by the Bureau of Ships. Also, throughout the past year I have been instructor of a defense training course in quality control in quantity manufacturing at Union College, Schenectady."

Gabe Hilton had a scare with some trouble with his gall bladder and was in the hospital in Buffalo expecting an operation, but the condition remedied itself and the doctors decided an immediate operation was unnecessary. Gabe has been back home for a month or so improving steadily and once more is feeling exceptionally well, although he is back on his usual wartime diet. Nothing serious should ever happen to anyone as good as Gabe!

In answer to our Christmas letter to classmates in the service, Henry Leeb answered: "I regret to have to advise you that I am not entitled to receive the generous remarks contained in your letter of December 18, as I have not gone back into the Navy. To be able to accept your kind wishes would give me great pleasure indeed, but the balance of circumstances so far have prevented."

From *Chemical and Metallurgical Engineering* we clipped the following item: "Allen Abrams, vice president in charge of research and development for Marathon Paper Mills Co., Rothschild, Wis., on January 1 became deputy director of the research and development division of the Office of Strategic Services located in Temporary Q Building, Washington, D.C. Dr. Abrams is on leave from Marathon." Best wishes to Allen in his work!

Marjorie Fuller, formerly in the Review Office, sent us the following interesting story from the May 22 Stamford *Advocate*: "American troops in Northern Ireland may relieve the British of the job of

## 1915 Continued

guarding the Irish isle against invasion by the Nazis, it is the opinion of Virgil E. Wardwell, marine engineer, who has just returned to his home in Stamford, after 10 months on the west coast of North Ireland where he was engaged in the construction of dock facilities. . . . The terrible toll of property damage in English cities bombed by the Nazis was related by Mr. Wardwell, who said that the comparatively few bombings of Belfast had left parts of that ancient metropolis in Northern Ireland in ruins. The Nazis not only dropped high explosives and incendiary bombs to wipe out blocks of buildings in the center of Belfast, but came in droves afterward to machine gun the populace in low diving planes. Thousands of pock mark holes in Belfast buildings, Mr. Wardwell said, attest to the machine gunning practices of the Germans. While new construction has not replaced the buildings bombed, the debris from fallen structures has been cleaned up so that cities have been able to carry on with normal life, the engineer reported.

"All kind of bombs have been used by the Nazis against the British Isles, said Mr. Wardwell, some of them dropped by parachute to cause panic among stricken residents of crowded cities. Onlookers, he said, would watch bombs coming down by chute, carried first one way by the wind and then another. They would seek to escape by a direction which was believed safest. He believed that many persons have been injured or killed by the milling and trampling of crowds seeking to escape from such attacks. . . .

"Food was not plentiful to the people of the British Isles when Mr. Wardwell arrived last Summer, but America, to which the English looked for help, has since relieved the shortages considerably. No candy is available, while eggs are rationed out at the rate of one a month per person. Mr. Wardwell found that the American troops were well received in Northern Ireland and had won the respect and admiration of the people of the various communities with whom they came in contact. The troops are well housed and are comfortable, he said.

"The Stamford man met Belgian mariners who had escaped by their own boats from the Nazi-occupied homeland and who are now working and biding their time under the safety of the English while their one hope is for the day when they will be able to participate in the fight to drive the Nazi hordes from Belgium. Mr. Wardwell believes that the people in occupied countries will give the Germans plenty of trouble when the opportunity presents itself.

"Even in England the strength of the Russian Army has been underestimated, said Mr. Wardwell, who thinks that the popular demand for a Western front in Europe has been inspired by the demonstration of the Russian Bear against what had been held previously as an invincible German Army. Mr. Wardwell, who lives at 33 Cowing Place, Glenbrook, has no plans for the immediate future, but is considering offers which may take him to a far-flung corner of the globe." —

This narrative was given to the press many months ago. We are wondering just where Virgil is at the present time.

Of all things! Mary Plummer Rice sends a card from New Orleans. It says: "I have found the perfect job at last! I am driving trucks for the Navy. This trip was from Rhode Island — 1,600 miles." How are you ever going to keep a lady like that either down or at home? She certainly is doing her share of war work.

This letter from Ben Neal in Lockport, N.Y., is just about the epitome of class loyalty, generosity, and spirit. Ben had already given a substantial check to the Alumni Fund and then sent another. He wrote: "My good old M.I.T. slide rule is still at my side, but like your head it shows the effect of time. It is slightly warped and the figures are not so clear as they used to be. From it, I divine that we are \$509.50 shy of our quota. Further calculations on the dusty rule show that if each of the 141 who contributed cashed in \$3.60 more, we should have the quota. I am enclosing my check for \$10 and hope that you can encourage the good old bunch to do likewise. Very best regards, you old rascal."

Bill McEwen felt the same urge and sent an additional check on top of the generous one he had previously sent. I really don't know how to thank these two classmates or how to commend them, but I want you all to know that it touched me impressively and is about the finest example I have known of "help Azel." — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline, Mass.

## 1916

Robert E. Wilson, Bob to those of us who attended our 25th reunion at the Oyster Harbors Club a year and a half ago, has been honored again. This time he is the winner of the Perkin Medal, awarded by a committee representing the five chemical societies in the United States. A testimonial dinner was given to Bob at the Hotel Commodore on January 8. He spoke on our patent system, which he believes is in real jeopardy because of public misunderstanding. A number of classmates attended this function. They were Bill Farthing, Bill Barrett, Harold Dodge, Jim Evans, Steve Brophy, Dutch Gaus, George Maverick, Ralph Davies, Len Stone, Ned Balyozian, Rudolf Gruber, and Joe Meigs.

After many years of absence from the United States and certainly many years of being out of contact with his classmates, Maynard C. Guss turns up in this country. He is living at 39 Hill Park Avenue, Great Neck, Long Island. The following will serve to bring classmates up to date on his most interesting experiences since graduation: "When I was graduated from Technology in June 1916, I went to New York City and joined Standard Oil. I have been with them ever since. I went to China in November, 1916, and stayed there, except for six-month furloughs about every four years, until November, 1941. For the last 22 years, I worked in the engineering and manufacturing departments in the Shanghai main office.

"By the time my November, 1941, furlough arrived, boats between Shanghai and the Pacific Coast had stopped running, so I went to Manila and waited there a month and got the *President Coolidge* (since sunk), which proved to be the last boat out of Manila. When we left Manila 10 days before Pearl Harbor, we did not take the usual route to Honolulu, but instead, convoyed by a destroyer, we went south to Australia.

"We heard about Pearl Harbor when we were near the Solomon Islands. After that the blackout was stricter and the zigzagging more strenuous. In fact, we were one month on the boat from Manila to San Francisco. The usual time is about 18 days. We visited Pearl Harbor about December 20 and took aboard the wounded and the widows.

"Standard Oil has a contract with the United States Army Air Transport Command. At the present time I am working on this contract in New York City. When this job is finished, I will be retired by Standard Oil. I shall not return to China, where I owned two furnished houses and land, all of which have been seized by the Japanese.

"I have been married for 24 years to a girl I met in Boston while I was at Technology. I have one married daughter in Boston and one daughter in high school in Great Neck, Long Island, where I reside. For 20 years I was an active member of the Technology Club of Shanghai, which is 75 per cent Chinese."

Classmates may receive a call from Harold Dodge, who writes me that he has in recent months visited 21 states while serving as technical consultant on inspection and quality control with the office of the chief of ordnance. He writes that his travels will continue on this scale for some time to come. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

## 1917

Alan P. Sullivan, still with the Cities Service interests, has his new laboratory and establishment in Hillside, N.J. He reports one son, 22, who is a first lieutenant in the Army, and another, younger, who is the Air Force and is interested in radio.

Frank Conaty's name appeared in the War Department's mid-December list of prisoners of war held by the Japanese in the Philippines. He had been listed as missing since the fall of Corregidor. He is a lieutenant colonel in the Quartermaster Corps and had been engaged in construction activities at Fort McKinley, Manila, during the fall of 1941. Mrs. Conaty and their son, Francis, were evacuated from the Philippines at about that time. The younger Francis, an honor graduate of The Citadel, is now a first lieutenant in the Cavalry and is serving in the South Pacific.

Frank was born in Taunton in 1890, was graduated with our Class, and was immediately commissioned in the Field



## 1917 Continued

Artillery. He served 16 months with the American Expeditionary Force in the World War. It is reported that Frank left Manila for Bataan on Christmas Day, 1941, and that the last direct word that Mrs. Conaty had from him was a letter dated May 3, a few days before the surrender of Corregidor. This letter left the islands on a submarine, was later transferred to a merchant ship which was torpedoed, and was eventually picked up in a floating mailbag in the Pacific. Should any members of the Class wish to write to Mrs. Conaty, her address is 921 Blue Hill Avenue, Dorchester, Mass.

Irving B. McDaniel, a captain in the Navy Construction Corps, whom we grudgingly share with 1916, returned from Venezuela early in the fall and is now supervisor of shipbuilding for the Southeastern District, which includes ports from Wilmington, S.C., to Miami, Fla. Mac lives at the General Oglethorpe Hotel, near Savannah, but he spends most of his time traveling in order to keep up with his schedule of daily launchings at one yard or another. His oldest daughter is married and is living in Washington, and for this year Mac's younger daughter is also in Washington finishing her final year of high school.

Frederick Bernard has left the insurance field for the time being and is active in the Boston office of the War Production Board. — Late January's press despatches also indicated cessation of one active phase of Penn Brooks' literary endeavors when he, as vice-president of Sears Roebuck and chairman of the board of directors of the Encyclopaedia Britannica, Inc., made an "outright gift" of that historic repository of fact, fiction, and fancy to the University of Chicago. Included in the generous presentation were the Britannica's subsidiaries in England and the dominions beyond the seas (that is, in Canada and South Africa), her "Book of the Year," and for good measure her junior edition and the *World Atlas*. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass. PHILIP E. HULBURD, *Assistant Secretary*, Phillips Exeter Academy, Exeter, N.H.

## 1918

No more news has come through from Jack Hanley. No one else has offered to do for other courses what Jack did for his, so I have very little to report.

I have been in touch with Weekapaug Inn, and the management is looking forward to our gathering there probably over the week end of June 18 to 20. Plans are going forth to open the inn as usual. We shall have to live in a dimout, but as most of us are living in that now, it will not cause trouble.

Word has just come of the death of Robert A. D. MacKay, II, on January 4 in Ocala, Fla. — GRETCHEN A. PALMER, *Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

## 1919

In January, an announcement of the 25-year reunion was mailed to each

member of the Class. A prompt response to this is urged by your Secretary and the committee. It is necessary to have the questionnaire returned by a large percentage of the Class in order to make the 25-year biography worth while. Remember to send both a recent photograph or snapshot and the war bonds, which are to be made out to "M.I.T. Class 1919 Fund." One bond is to be mailed in 1943 and the other in 1944. These will make up our 25-year gift to the Institute.

George McCarten writes from 576 Church Street, Bound Brook, N.J.: "This card is a blank as far as news is concerned. An 'A' card and lots of work hold down the process of circulation. My best wishes for the New Year." — Carlos Krebs, 39 Moraine Street, Jamaica Plain, Mass., suggests a mixed reunion. He is engaged in the manufacture of gas-cutting machines for war production work and is president of the General Welding and Equipment Company, Boston.

R. R. Litehiser, a colonel at Fort Leavenworth, Kansas, writes under date of January 7: "My present detail is that of an instructor in organization and operation of ports of embarkation and debarkation at the command and general staff school, Fort Leavenworth, Kansas. I should be glad to have any M.I.T. men who come here look me up." — S. J. Hayes, 52 Willow Street, Wollaston, Mass., wrote that he had no news.

R. S. Holmgren, 3028 College Avenue, Berkeley, Calif., writes: "I have changed my location again. About one month ago I left Clearfield and came to San Francisco to work on the construction of a bunch of floating dry docks for the Navy. These will be used at advanced repair bases." With regard to the reunion, he comments: "If the war continues, I shall not be able to make it. I suggest that it be delayed until after the war. We should draw only a small number now."

The following changes of address have been received since the last issue. Henry S. Derby is now a lieutenant colonel at Fort Ethan Allen, Vt. Everett F. Doten resides at 4372 Grayton, Detroit, Mich. Laurence A. Gillett moved from Cincinnati, Ohio, to 628 William Street, River Forest, Ill. Frederick R. Hewes, a Navy captain, is at 1815 North Hartford Street, Arlington, Va. Frederic M. Lee has moved to Route 1, Earleysville, Va. Dr. I. Paul Maizlish has moved from Tulare, Calif., to 5 East Elm Street, Stockton, Calif. The address of James R. Moore is 420 New Industrial Trust Building, Providence, R.I. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 420 Lexington Avenue, New York, N.Y. GEORGE W. MCCREERY, *Assistant Secretary*, 131 Clarendon Street, Boston, Mass.

## 1920

We can continue to be proud of the military record of the Class. Lyman P. Whitten, recently elevated from the rank of colonel to brigadier general, is at the headquarters of the Army Air Forces in Washington. He was an Army flying officer in the first World War and then re-

turned to the Institute to be graduated. He and Mrs. Whitten make their home in Washington. Henry Erickson is a captain in the Marines and is also located in Washington. David Flashman is a captain in the Army Medical Corps and has recently been located in Texas. He was previously an instructor at the University of Pennsylvania. Dan Hennessy is now a lieutenant in the Naval Reserve.

I received a most welcome letter from Heinie Haskell, who is a lieutenant commander with the production branch of the Bureau of Aeronautics, Naval Reserve, and is at present living at the Hotel Lee Sheraton in Washington, having left to his associates his prosperous worsted manufacturing business at Moosup, Conn., and his home town bank, of which he had been head. He ran into Major Larson at Wright Field recently. Heinie says: "When the war is over, I shall hurry back to Connecticut to clear out the grounds for a landing field."

Tony Anable, a lieutenant commander, still maintains an address in New York, 155 East 72nd Street. A. H. Castor has been promoted to the rank of major and is at present in Washington. Harry Kahn is a lieutenant in the Chemical Warfare Service in Brooklyn, N.Y. Ed Cochrane has been promoted to the rank of rear admiral and is in Washington. Charles Lawson is a major in the Army Air Forces. Tom Taber is now a colonel; Ray Collier is an Army captain; and Bob Van Volkenburgh is a brigadier general.

Here is a little news about the few remaining civilians. I got the usual ingenious and attractive homemade Christmas card from K. B. White, who is still at "Loss Vineyard," 1300 Manhattan Avenue, Union City, N.J. Richard Soderberg is a professor at the Institute. John Tunis has left New York and is in Lexington, Ky. Arthur Morley's present address is 1501 State Street, Granite City, Ill. Merritt Taylor is in Ardmore, Pa. Fred Zurwelle is in Miami, Fla. Ted Hobson is in Columbus, Ohio, at 44 West Kelso Road. Bill Hedlund is at 194 Oak Ridge Avenue, Summit, N.J. Russell Peirce has left Portland, Maine, and is now in Newburyport, Mass. Harold Bower's address is 84 Lincoln Street, Melrose, Mass.

From what your Secretary knows about classmates both in the service and in industry, he can see that the Class is doing all it can to get this war won and everything straightened out well in advance of our 25th reunion in 1945. Let's keep up the good work. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

## 1921

The Class of '46 at the Institute has two sons of classmates among its members — Abbot Fletcher, son of Paul W. Fletcher, VI, a commander (deceased); and Malcolm H. Kurth, son of our Council Representative, Henry R. Kurth, VI. Also at Technology are Thomas S. Barrows '45, son of Ralph G. Barrows, I, a colonel; and William B. Scott '44, son of Stanley L. Scott, I, who is a brigadier general.

Alfred J. Lyon, a brigadier general, died on December 1 at the Walter Reed General Hospital, Washington, D.C. General Lyon was born in Coeur d'Alene, Idaho, and served with the Idaho National Guard before entering the Air Corps Reserve in 1917. His later assignments with the Air Corps included special service as an observer in London.

Charles A. Williams, VI, has been elected president of the New Haven County Technology Club. Charlie is vice-president in charge of distribution and sales for the United Illuminating Company of New Haven. A. Royal Wood, VI-A, is secretary and treasurer of the same company. A recent issue of *VI-A News* reported an increase in his family but gave no details. George and Cynthia are now six and four years old respectively. Charlie has two children — Molly, who is 16, and Billy, aged 12.

John G. Lee, II, of Tech Show fame, has switched from dramatics to literature. John, who is assistant director of research for United Aircraft Corporation, East Hartford, Conn., has published a book on *Fighter Facts and Fallacies*. Published by Morrow, it is a compendium of various types of aircraft and their uses. — Edgar E. Hume, a lieutenant colonel, is the editor of a recent publication of the Johns Hopkins Press entitled *General Washington's Correspondence Concerning the Society of the Cincinnati*. Colonel Hume is on the staff of the Army Medical Field Service School, Carlisle, Pa.

The mammoth Pentagon Building of fame and fable seems to have its quota of '21 men from the Washington area. On a recent visit your Assistant Secretary saw Frederick S. Dellenbaugh, Jr., VI, a lieutenant colonel, and Joseph A. Mahoney, X, a major, in adjoining sections. It would be interesting to know what other members of the Class are denizens of that perfect specimen of a subject for visualizing in descriptive geometry.

Service records show that 102 men, or 11.4 per cent, of those who have been associated with the Class are now in the armed forces — 73 in the Army and 29 in the Navy. One man has been killed in action, one died in service, and one is reported missing in action. Raymond G. Moses, I, has been promoted to brigadier general and assigned to duties in Washington. A new list of colonels includes Harold O. Bixby, II, Merle H. Davis, X, John R. Hardin, I, Leland H. Hewitt, I, and Harold E. Smyser, XIII. James S. Parsons, XV, has been made a major. Arthur R. Harvey, XV, and Philip A. Nelles, Jr., II, have been commissioned captains. Harry Butters, III, is a private. In the Navy, Thomas H. Frost, X, has been made a lieutenant commander, and Bernard H. Moran, II, received his commission as a lieutenant.

Included among those with new addresses are Major Thomas B. Card, VI, 115 Coolidge Hill, Cambridge, Mass.; Lawrence D. Chellis, II, 26 Unicorn Avenue, Weymouth, Mass.; Carl W. Hammond, II, 10947 Huston Street, North Hollywood, Calif.; Lieutenant Colonel Le Roy M. Hersum, I, Hotel Shoremede,

Miami Beach, Fla.; S. Paul Johnston, II, Cosmos Club, Washington, D.C.; Lieutenant Ira P. Jones, II, 106 North Polk Street, Tullahoma, Tenn.; Alexander J. La Pointe, X, Sherwin Williams Company, 115th and Cottage Grove, Chicago, Ill.; Private Ralph R. Lewis, XV, 107 Boulevard, Revere, Mass.; Winthrop E. Luke, IV, 55 Horne Road, Belmont, Mass.; Harvey F. Rettew, II, 4912 Osage Avenue, Philadelphia, Pa.; Rear Admiral Howard L. Vickery, XIII-A, United States Maritime Commission, Department of Commerce Building, Room 4836, Washington, D.C.

What's your news? Send it to your Assistant Secretary now. — **RAYMOND A. ST. LAURENT**, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. **CAROLE A. CLARKE**, *Assistant Secretary*, Federal Telephone and Radio Corporation, 1000 Passaic Avenue, East Newark, N.J.

## 1923

Our respected Secretary, Horatio L. Bond, flew to England about the first of the year for a stay of about two months. He is the special representative of the Office of Civilian Defense to study fire protection problems. The National Fire Protection Association was glad to lend him for this purpose, believing that the information he will obtain will be of great importance to our own civilian defense organizations and in the general interest of fire safety.

The December issue of *Chemical and Engineering News* carried an article describing the election of Per K. Frolich as president of the American Chemical Society, the largest professional organization of its kind in the world. Taking office at 43, he is the youngest man to serve as president of the society in more than 30 years, and he is the first representative from the petroleum industry to be elected to that position. Born in Norway, Dr. Frolich obtained his undergraduate training at the Norway Institute of Technology, from which he was graduated in 1921 with a B.S. degree. In 1922 he accepted an American-Scandinavian fellowship for graduate work at M.I.T., where he received an S.M. in 1923 and a Sc.D. in 1925. In 1936, he became director of the new chemical division of the Esso Laboratories, one of the outstanding contributions of which has been the development of butyl rubber.

The Register of Former Students reports many changes in addresses. Most of the changes are for classmates who are in the armed forces or are doing war work. Among those who have moved in recent months are Raphael S. Chavin, a brigadier general, who has gone to Ravenna, Ohio; Carroll H. Deitrick and Burnett R. Olmsted, colonels, who have moved to Washington, D.C.; Cecil G. Young, also a colonel, to Newark, Del.; Walter A. Metcalf, a lieutenant colonel, to Wellesley, Mass.; Percy P. Pratt, a lieutenant colonel, to Battle Creek, Mich.; Herbert H. Flather, a lieutenant commander, to Washington, D.C.; Paul B. Nibecker, a captain in the Navy, to the

Navy Yard in Boston; and Herbert L. Hayden to Danville, Ill.

It is with regret that we report the death of Donald E. Cummings, who was killed in the crash of the Western Airlines transport plane in Utah on December 15. Cummings was head of the industrial hygiene department of the University of Colorado School of Medicine. He was a past president of the American Industrial Hygiene Association. He was a graduate of both M.I.T. and West Point. We are sorry that he is gone.

J. W. Beretta, a lieutenant colonel, writes that he is interested in receiving class notes. Among other things he sent us a poem entitled "The Kee Bird," which we wish could be reproduced here. If you have not already read it, we suggest that you do so. Its humor is refreshing in these days of oil shortages and heatless office buildings. — **HOWARD F. RUSSELL**, *Acting Secretary*, 71 Catlin Avenue, Rumford, R.I. **HORATIO L. BOND**, *Secretary*, 457 Washington Street, Braintree, Mass. **JOHN M. KECK**, *Assistant Secretary*, 207 Bloomfield Avenue, Bloomfield, N.J.

## 1926

A note from Ben Richardson reports the death on December 7 of F. J. Grueter. The Class will be very sorry to learn of his unfortunate passing.

E. C. Van Blarcom has been promoted from assistant superintendent to superintendent of the zinc plant of the Anaconda Copper Company at Great Falls, Mont. Van went with this company immediately upon graduation, and by 1929 he headed the department of research chemistry. In 1936, he was transferred to operations as assistant superintendent in the leaching division. In 1941, he became assistant superintendent of the zinc plant.

Reports from George Smith, whose address is 3107 44th Street, Northwest, Washington, D.C., indicate progress and hard work in his job as a member of the staff of War Production Board. He has been in this work for eight months, the first five of which he spent in the coal-tar chemical unit. He now is in the intermediates unit. — **JAMES R. KILLIAN, JR.**, *General Secretary*, Room 3-208, M.I.T., Cambridge, Mass.

## 1928

Classmates, do you know that Lewis Edgar Archibald, II, is the new son of Arch Archibald of Goshen Road, Newton Square, Pa.? While we are on the subject of children, here's some news of Bill Woods and his family. In a recent letter to Ralph Jope, Bill wrote: "I had just returned from South America and stopped by to drive the family home. Ann and the four youngsters spent the summer with her sister while I was away. I am still with Gulf and am working as production engineer. I specialize in natural gasoline plants." Bill's address is Gulf Oil Corporation, Post Office Drawer 2100, Houston, Texas.

John Connelly is still in York, Pa. He has two children — a boy, six, and a girl, eight. — **ABE WOOLF** is in Detroit



1928 Continued

with Albert Kahn, Inc., doing structural design work. He has been construction supervisor of new buildings for the aircraft industry. Abe has two boys — ages one and five.

For 12 years a research engineer for the Humble Oil and Refining Company, Bill Hurst has joined the engineering staff of Core Laboratories, Inc., at Dallas. He has moved his family there from Houston. In his new position, Bill will continue to specialize in the application of field data to predicting reservoir pressure variations. — Ted Hubbuch and his wife are living in Florence, Ala., where he is connected with the Tennessee Valley Authority. — When last heard from, Max Bearon, a first lieutenant, was post ordnance officer at Madison Barracks in New York.

To Johnny Melcher, our Class Agent for the Alumni Fund, go our belated thanks for some of the following news items which have been edited and brought up to date with our most recent knowledge of who's what and where. Incidentally, Johnny is half glad and half sad over the '28 Fund results. He is glad because we're ahead of last year, but he is sad because as of January 26 we had only reached 81 per cent of our class quota in number of contributors and only 57 per cent of our money quota. Johnny says he needs more big gifts of \$20 or \$25 and more. How about it, gang? M.I.T. needs the regular support of its Alumni, and your contribution, big or small, will help our '28 record.

Bill McClintic has had some interesting assignments since joining the Navy. Last summer he was acting inspector of naval aircraft at the Edward G. Budd Manufacturing Company in Philadelphia, working under the auspices of the naval aircraft factory at the Philadelphia Navy Yard. He has really gone the rounds for Uncle Sam, starting in with being a physicist on degassing, then working as assistant to the chief inspector at the naval aircraft factory, and representing the Navy when they were operating the Brewster Aeronautical Corporation. After making a backdoor entry into aviation via Course VI and the New York Telephone Company, Bill appears to be giving a very good account of himself. When he's at home, it is at 2042 Locust Street, Philadelphia.

Gerry Patrick is keeping plenty busy with the Cleveland Automatic Machine Company, making the machine tools for the war plants. — Dr. Hirsh Sulkowitch has taken a leave of absence from his research work at the New York Hospital and has signed up with the Air Forces. — Red Walsh has left the New York Power and Light Corporation for the Army. His first assignment was with the Corps of Engineers at Fort Belvoir, Va.

Dick Wilson, formerly commercial research engineer with the General Dye-stuff Corporation in New York, is now Lieutenant Wilson of the Naval Reserve. Dick's entrance into aviation via chemistry adds further demonstration of the versatility of '28 men. At General Dye-stuff, he was working with Bob Bonnar '27, head of their technical staff. Dick,

still single, was living at '28's favorite hotel, The Shelton in New York, which is also inhabited by Jim Glazebrook, Arthur Josephs, and probably enough others to make an alumni club. He recently saw Birj N. Gupta, who is a selling agent for India rugs.

Fritz Rutherford is working on ammunition production for the Detroit Ordnance District. He was a captain at last reports, but we hope he is a major by now. He is anxious to finish the war as soon as possible, so that he can have a vacation in Montana. — S. J. Shure reports from St. Louis that he hasn't yet changed his suit for one of the khaki ones. He is with Natkin and Company, commercial engineers, and his letterhead indicates that they cover the entire Mississippi Valley.

Dick Goble has broken a long silence to report on his situation in Cincinnati. He is with the Imperial Paper and Color Corporation, in charge of their pigment business in the Cincinnati territory. His description of Southern Cincinnati sounds like a chamber of commerce blurb: "Swell people, beautiful country, and good sound conservative business." Dick sells the pigments that go into a great deal of war goods, so that the boys running the tanks and planes will know where to complain if the machines get rusty too soon. Dick reports that Ken Lord '26, formerly of Greenville, S.C., is now with the War Production Board in Washington. He sometimes sees G. P. Watty Black in Greenville and Gerry Patrick in Cleveland. He invited calls from visiting classmates, and we hope that a deluge of travelers will descend upon him.

Frank McGuane is another New York Telephone man in Uncle Sam's service. He is Captain McGuane, chief of the personnel and pay roll department at Pine Bluff Arsenal, Pine Bluff, Ark. He "enjoys" the 100 degrees-in-the-shade temperature by contemplating the winter sports of New Hampshire, which he will appreciate all the more after being in the hot country for a while. He didn't mention any Arkansas travelers, so I suppose they are now obsolete.

Paul Johnson reports from Honolulu that he is getting along just fine there, despite being in the war zone. He is vice-president of W. A. Ramsay, Ltd., industrial sales and engineering representatives for General Electric in Hawaii. Their business now is almost entirely with the armed forces, and they are plenty busy, as we all can appreciate. Paul wrote no details about December 7, but he doesn't like the Japs.

During the holiday season, several members of the Class had a memorable meeting in Boston. It started at the Lobster Claw restaurant in Boston as a welcome-to-Boston party for Mrs. Maud Carlisle, Bill Carlisle's mother. In addition to Bill and his mother, there were Bill Kirk, a lieutenant, and Mrs. Kirk; Benny Hough, a major and Mrs. Hough; Mr. and Mrs. Joe Parks; and your humble servant and Madame Secretary. It was a grand party and a swell reunion. At one point we were joined by a full-blooded Indian chief.

After we sold him to the proprietor for a little wampum and firewater, we hired two cabs, and the entire party went all the way to Winchester to call on Ralph Joep. Here the party split — women to the parlor and men to the kitchen and poker. Yes, it was a night, and it's the first time we've seen Joe Parks cleaned out and borrowing from Lieutenant Kirk. By the way, that lad Joe is now manager of the new Bendix plant located in Norwood, Mass. Bill Kirk is with the Navy Procurement Division, and Benny Hough is with his first love, the United States Engineers. Both are in Boston. — GEORGE I. CHATFIELD, *General Secretary*, 6 Alben Street, Winchester, Mass.

## 1930

Jack Bennett, II, has returned from Australia after a stay of five years and is again working at the main plant of the Goodyear Tire and Rubber Company in Akron. His wife and daughter returned with him on a Dutch vessel. The Class welcomes its President to his native shores and expects to see some Australian movies at the 15-year reunion in 1945.

Christmas cards from classmates revealed that Al Bird, XIII, now has two daughters, while George Wyman, XV, is the father of a boy and a girl.

The Hingham delegation of 1930 is proud to report the arrival of two potential members of the M.I.T. Class of 1964. John K. Sherman, 3d, was born on November 21, and Robert C. Starratt joined your Secretary's household on January 22. I will send a cigar to any classmate who sends his congratulations, provided that said classmate furnishes morsels of news concerning himself and other '30 men. I'll report how many of you fellows take me up on the offer. — PARKER H. STARRATT, *General Secretary*, 1 Bradley Park Drive, Hingham, Mass.

## 1932

We have received some items from the clipping services. There have been no letters, but that is understandable considering the fact that we are all becoming more and more enmeshed in war. Our offer to pass on any news you send us still stands.

Barbara Siegrist was married to William C. Schoofield in New York last October. The bride is a graduate of the Low-Heywood School, Stamford, and is a member of the Bridgeport Junior League. Bill is with Vought-Sikorsky in Stratford and is a member of the University Club and the Black Rock Yacht Club in Bridgeport. — In December, Mary Duff was married to L. William Glowa in Washington, D.C. Mrs. Glowa is a graduate of Mount Vernon Seminary and Wellesley College. The couple will make their home in Alexandria, Va. — Also in December, the engagement of Lois Grace to Joseph Anthony Kane was announced in Swampscott, Mass. Miss Grace was graduated from the Pace Institute in New York City.

Parker Devlin is an Army captain at Fort Randolph in the Canal Zone. An article in the Boston *Herald* described

1932 Continued

him as the eldest of four brothers in the armed services.

Charles E Locke '96, Alumni Secretary, wrote: "Louis C. Raymond has returned to his home at 1912 20th Road, North, Arlington, Va., after completing five months' special geological work on Bolivian tin for Mauricio Hochschild, S.A.M.I." CLARENCE M. CHASE, JR., *General Secretary*, 1207 West 7th Street, Plainfield, N.J. *Assistant Secretaries*: CARROLL L. WILSON, Research Corporation, 137 Newbury Street, Boston, Mass.; WILLIAM A. KIRKPATRICK, Allied Paper Mills, Kalamazoo, Mich.

## 1937

We must all have our noses to the grindstone these days, for no one finds time to write. The one exception is Al Woll, XV, who evidently has his nose placed firmly against the old abrasive disc but still finds time to dash off a note from Carlyle, Ill.: "This past year has been an extremely eventful one for me, even to the extent of running a close second to Anthony Adverse. On last January 25, we were blessed with the birth of a daughter, Helaine Martha, who will be good timber for Wellesley '64. Getting accustomed to this new role of daddy was only a drop in the bucket to what followed. At that time my dad-in-law and I bought an oil field, and he left me to manage the works. We bought 107 wells. About 27 of them are still producing. Now I find myself dismantling the old wells and producing oil from the 27. Course XV is certainly coming in handy in this one-man organization of buying and selling equipment, tanks, and casing for the oil country. There is also the matter of scrap for Uncle Sam to take care of. To be one's own boss is a grand feeling, but filling out the infinitely complex government forms brings plenty of headaches.

"Since I am only about 50 miles from St. Louis, I have visited that town on business on several occasions. I went out with Milt Lief, XVI, and his wife. We took in some of the municipal operas. Milt is still with the Curtiss-Wright Corporation and is going strong. Occasionally I hear from Stan, XVI, and Anne, IV, '39 Zemansky. Stan has had his share of moving from Texas to California for his company. They are the only ones I hear from in this thriving metropolis of 2,600 gregarious and teeming souls. Despite the smallness of this town, a fellow certainly can keep pretty busy in his business, for we are in the heart of the oil country of Illinois. Socially this town offers nine taverns and one theatre. All in all, though, I believe it is ideally situated. I have the comforts of a small town, and yet I can get to the big city to derive its benefits. Yes, the driving situation is somewhat tough now, but the war won't last forever."

I was pleased to find that Phil Peters had added something to the notes which appeared in the February issue. I could hardly wait for the issue to come out. — WINTHROP A. JOHNS, *General Secretary*, Route 1, Bellemead, N.J. PHILIP H.

PETERS, *Assistant Secretary*, 10 Babson Park Avenue, Wellesley Hills, Mass.

## 1938

We received many items of interest about the gang in connection with the class reunion. John Burke, who has been doing metallurgical work for the Bethlehem Steel Company, is now in the Army preflight school at Maxwell Field, Ala. Alfred Wagner is at Pensacola in the power-plant division. He has been officer in charge of ground school motor-test stand.

Norm Stewart is spending the season at some beach club in Miami. He is in a technical school squadron with the Air Corps. John Whittaker reports from Camp Davis that he was married on December 19 to Mary Johnson of Wilmington, N.C. Paul Foss is at Scott Field, Ill. He is in an Air Corps radio section. Andy Stergion is still at Aberdeen and is busy on statistical and quality-control work.

Doc Thompson is now commanding officer of a battalion at Fort Belvoir, Va., where he has been since April. He's got quite a family now with two sons, David and Brian. — Julius Kovitz is in the Chemical Warfare Service and is stationed at Edgewood Arsenal in the technical command, along with many other Technology boys.

Reports from some of the fellows who are overseas show that Jack Chapin recently moved through Australia. John Downs is at present in North Africa with the Engineers. Mrs. Walter Johnson says her husband is "with the Coast Artillery overseas."

Lou Bruneau writes that he is now an auditor for the Phelps Dodge Defense Plant Corporation. At present he is assigned to the Castle Dome job in Miami, Ariz. — After four and one-half years, we received a nice letter from Harold Straus. He has been working for Douglas and Curtiss and is now with Northrop Aircraft. He was married in September to Henrietta Gottesman of New York City. Henrie, Harold, and their bulldog are holding down a three-room apartment at 4219 Leimert Boulevard in Los Angeles.

John Perkins has recently become engaged to Elizabeth W. King of Topsham, Maine. Roy Hopgood is working for the National Defense Research Committee. He has recently finished evening law school. Roy is proudly talking about Carolyn, born November 29.

Jack Wilber reports that his three-year-old is booked for Technology. Jack is working in one of the Du Pont plants, making sulphuric acid by the chamber process. He says he is helping Fred Ray run a scout troop in Woodbury, N.J. — DALE F. MORGAN, *General Secretary*, 142 Woodland Avenue, New Rochelle, N.Y. RICHARD MUTHER, *Assistant Secretary*, Room 1-180, M.I.T., Cambridge, Mass.

## 1941

The amount of mail floating into this city of New Orleans is small indeed. We must call upon the old faithfuls for a few letters as a source of information. The reason for said dwindling may possibly

be the same that causes our own long delay in answering correspondence. In a 90-hour schedule there is little time for writing. The call has been sounded, however, and we shall see what will come of it.

From Ralph Jope '28, Alumni Association Treasurer, we received some information about Arthur A. Fletcher, Jr. In September, Arthur left the States. He was wounded in May and was fully recovered by December. He received the Order of the Purple Heart and was made a flight commander with the rank of captain.

Another note comes in to tell of the transfer of one Jack Heist, a lieutenant, from the nation's capital to a field unit. Jack was married recently to Margaret Gallagher of Pennsylvania.

Co-ed Marg Quinlan was married to George Swift '24 on December 19. Atwell Smith, a captain, was married to Elizabeth Beach on the fifth of the same month. Captain Smith was graduated from Dartmouth before he came to the Institute. Out at Dayton, Ohio, Wallace Blanchard, now working with General Motors in Dayton, walked down the aisle with Charlotte Walker of that town. Good luck to all.

Howie Samuels earned his double bar at Camp Lee as an instructor in motor mechanics. What Samuels knows about cars we've often wondered. Fred Herzog, also well known in basketball circles on the Charles, has been commissioned a second lieutenant in the Army Air Forces. He ranked among the five highest men in his class at navigator school at Mather Field in California.

Al Parsons has received his silver bars in the Corps of Engineers. He is overseas. Rog Finch, a captain, supplies all the news about Camp Lee. He writes: "Things have really been happening in the life of this one Finch this past month. That 9 pound, 5 ounce baby boy of ours is really quite a kicker, and you'd never believe that he is only four weeks old. He looks about three months. Rog Morse is a battalion adjutant in a colored regiment. He and wife Bequita live about three blocks from us here in Colonial Heights. Incidentally, we live in an old colonial house which was built in 1665 and which was used as headquarters by General Robert E. Lee during the siege of Petersburg.

"We M.I.T. boys get together here at the club occasionally, as do the wives. We are planning a general get-together soon."

We have a card on hand from Paul Erlandson, who is now with the Bureau of Ships in Washington. His wife Betty is teaching school and keeping house in the bargain.

A note from Larry Turnock, formerly called Beaver, indicates a job with Uncle Sam's forces, with Baltimore as home station. Larry is warming up for the race down the aisle in June. Lucky girl. — STANLEY BACKER, *General Secretary*, 46 Bicknell Street, Dorchester, Mass. JOHAN M. ANDERSEN, *Assistant Secretary*, Room 12-184 M.I.T., Cambridge, Mass.

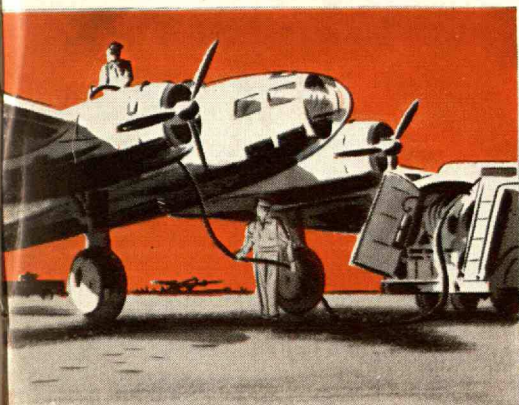




## WILL RIDE TO VICTORY ON THE **SEVEN C's**

THE "Seven C's" are *Conservation*, to salvage all rubber for re-use; *Care*, to make what we have last longer, do more; *Cooperation*, in use and allocations; *Compounding*, to produce the best mechanical rubber goods within the limits of supply; *Construction*, of fabric and reinforcement so that less rubber may do more; *Collaboration*, of the entire Rubber Industry for the good of all; *Courage*, to pursue research and development relentlessly.

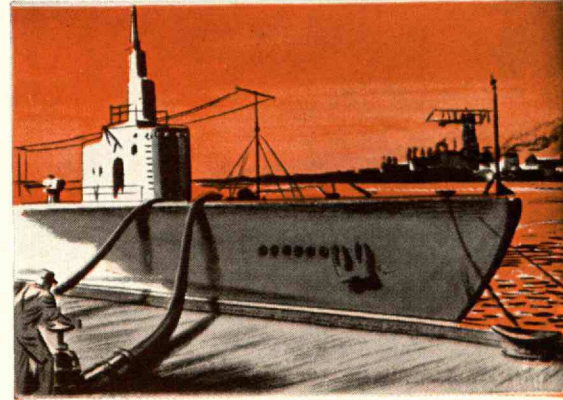
The entire mechanical rubber industry is applying its collective ingenuity, experience and skill from laboratory to shipping platform with results which, at times, may look like miracles to anyone unfamiliar with the sustained research which is an inherent part of the story of Rubber.



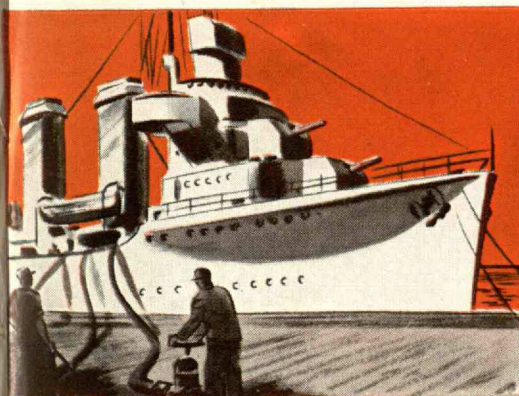
In a single airplane there are hundreds of rubber parts, including hose for fuel, oil lines and hydraulic controls; packings, and vibration dampeners.



Tanks need rubber at many points—rubber that will withstand heat, cold, oil, abrasion.



Submarines require acid-resisting rubber for battery compartments; other kinds of rubber in gaskets, mountings, and for scores of special applications.



Thousands of pounds of rubber go into every warship at hundreds of places from propeller shaft to gun decks and fire control tower.



Trucks and gun carriages require rubber for hydraulic brake parts, for shock absorption, and for other vital uses.

### 50th YEAR OF RESEARCH

THE half century mark now reached at MANHATTAN finds the thousands who work within its several plants too busy to take full note of this milestone in a long record of achievements. Among these are: Compensated Power Transmission Belting in which all plies have equal stresses; the Extensible Tip for prolonging the life of endless belts; the Homoflex hose construction principle which increases the flexibility and multiplies the life of rubber hose—often many times; Radio-Active treated fire hose that resists mildew; first to adapt synthetic rubber in oil-proof rubber products; Vibration Dampener Bushings for portable grinding wheels.

These are but a few of the MANHATTAN developments which are contributing to conservation of rubber by prolonging service life, and to greater production.

**THROW YOUR SCRAP  
INTO THE SCRAP!**

**KEEP AHEAD WITH**



**THE MANHATTAN RUBBER MANUFACTURING DIVISION**

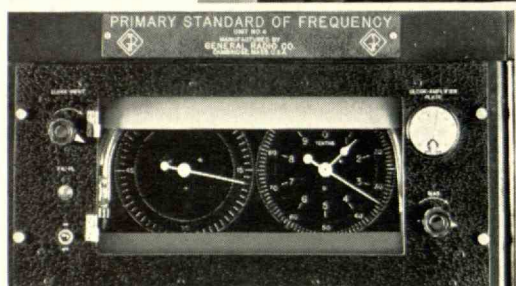
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EXECUTIVE OFFICES

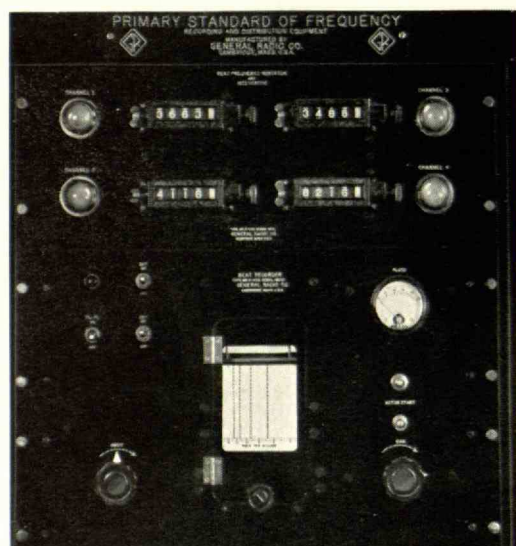
PASSAIC, NEW JERSEY

Thomas H. Boyd, '23      Wilder E. Perkins, '25  
Charles P. McHugh, '26      Daniel J. Hanlon, '37  
Albert W. Beucker, '40





The stroboscopic clock is for comparison of integrated oscillator frequency with radio time signals. The hand on the dial at the left indicates seconds; the two hands at the right indicate tenths and thousandths of seconds. The received time signal flashes a stroboscopic lamp, which arrests the motion of the tenth and thousandths seconds hands once each second. The precision of reading is about 0.0002 second, which is equivalent to approximately two parts in one billion for a twenty-four-hour interval. Variations in radio-time-signal transmission, of course, make it impossible to utilize this precision completely.



Note the recording panels which show the beats between pairs of oscillators. The deviation from a vertical line is a measure of the variation in frequency of one oscillator with respect to the other, as indicated by the scale at the bottom of the chart. The precision of reading can be increased or decreased if desired. Beats are recorded between each of four oscillators and a common reference oscillator. If all beat records show identical deviations, the reference oscillator is drifting, while if only one line deviates, the drift is in the oscillator being measured.

Above the recorder are counters which indicate the time in seconds for a predetermined number of beats.

## THE MASTER STANDARD OF FREQUENCY

Nearly twenty years ago, the General Radio Company started a program of research and development in the field of frequency standardization, which has produced many general-purpose and specialized frequency measuring instruments for the world's civil and military communication systems.

The center of this research program is the master primary standard of frequency shown here, which supplies standard frequencies for the calibration of General Radio instruments and for measurements in the General Radio laboratories. Consisting of five quartz-crystal-controlled oscillators, with means for timing and inter-comparing their frequencies, this standard is far more accurate than present-day commercial requirements. In addition to the frequency standard itself, the racks shown in the photograph include experimental equipment in which new circuits and methods are proved before their incorporation into commercial instruments.

To implement the production of military radio equipment, General Radio frequency measuring instruments are now more important than ever before. Their continued reliability and accuracy are assured by this master standard and the unceasing research program associated with it.



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